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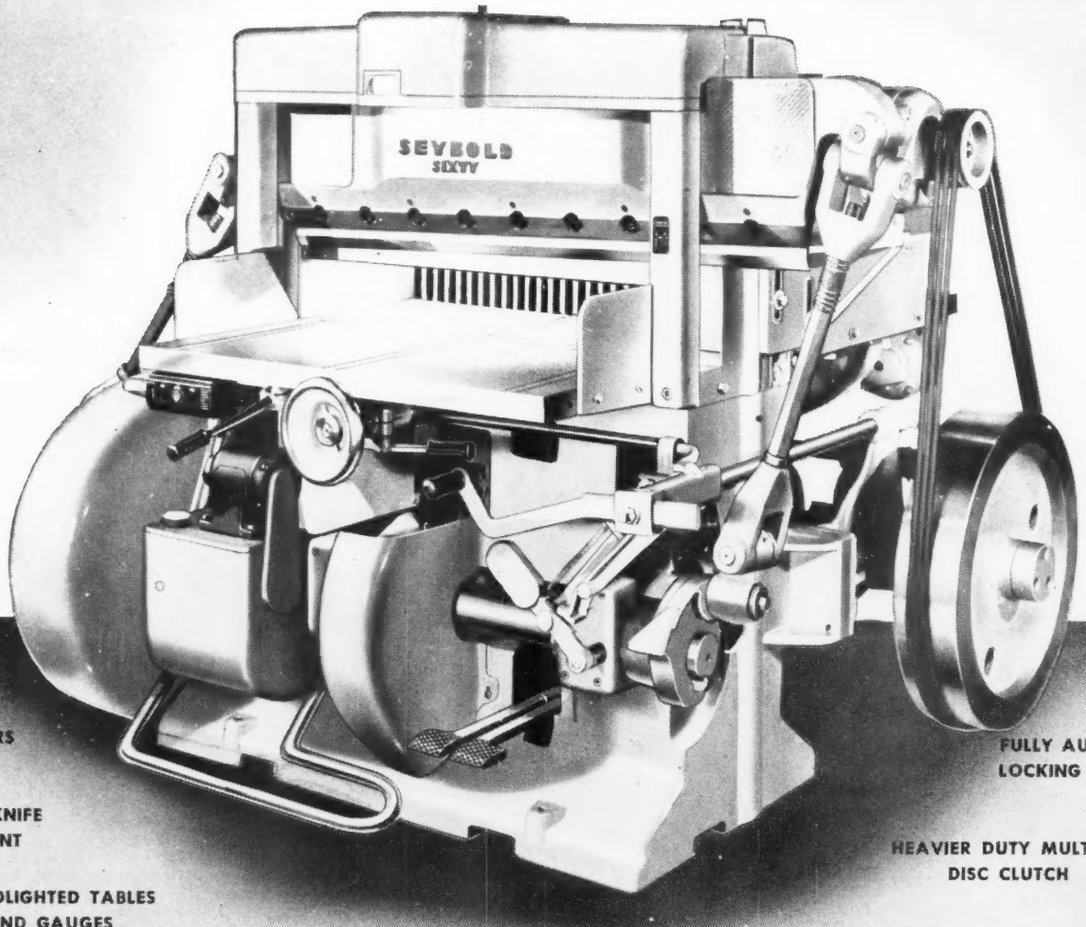

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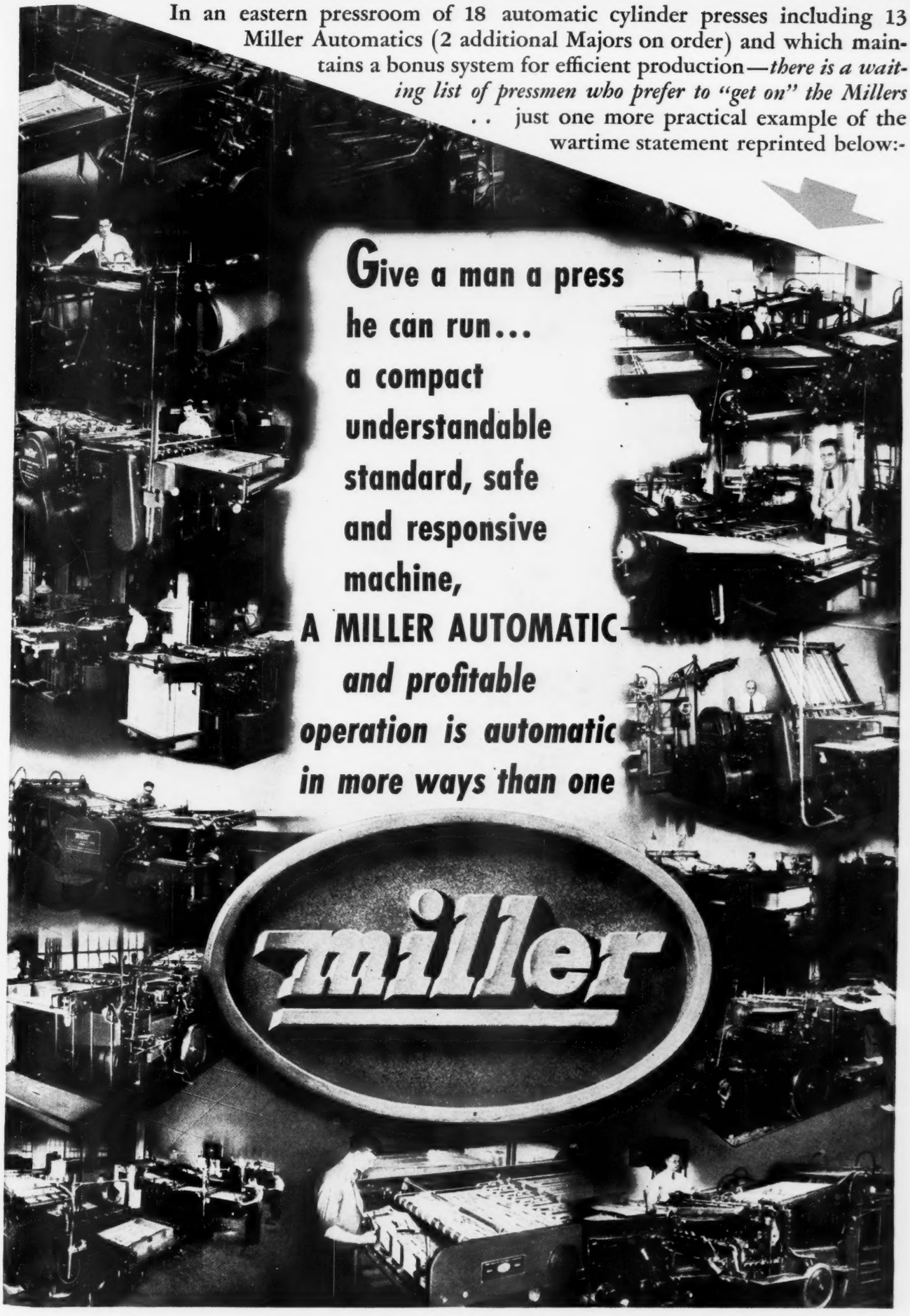
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PRINTING EQUIPMENT *Engineer*

Volume 72 **Number 3**

A technical publication
for the mechanical executive
responsible for printing production,
equipment and supplies
in the commercial, magazine,
private plant and daily
newspaper field.

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STANDARD BOOK ON ESTIMATING for PRINTERS—By Fred W. Hoch. Revised 1941 edition. This book is a primer for students and a reference for printers and estimators. Every printing plant should have a copy. Author explains all operations in commercial printing plant and shows production time allowance for each in hours and decimal hours. Size, 6 in. by 9¼ in., 268 pages, $3.75 per copy, cash with order.

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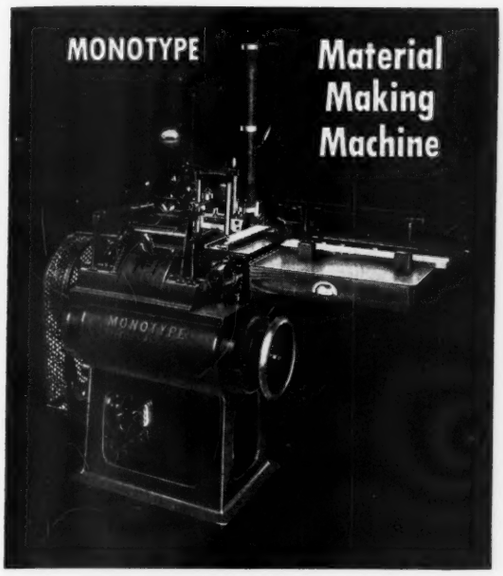

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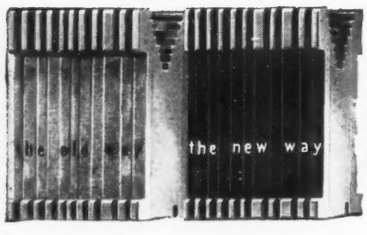


Matrix Contrast Service

Four Directors and Executives of Copifyer Lithograph Corporation, Cleveland—(Seated at left) **Allen H. Frost, President; Frank A. Myers, Treasurer and General Manager;** (Standing at left) **Andrew Balika, Superintendent; William C. Stone, Secretary and Production Manager. Other officers of the company not shown here are James S. Van Nostrand and Carl P. Knab, Vice Presidents.**

Planning

future plant at Copifyer Lithograph Corporation, Cleveland—Methods used by executives of successful firm to secure interest and ideas of entire plant personnel—Control methods employed in regular production

THIS article is concerned with the approach to the equipment layout planning problem previous to moving an offset-lith plant and its personnel into a new building during early fall in 1945. It is also concerned with some of the control methods used in that plant. It is not the complete story of a successful 12-year-old lithographic plant staffed by aggressive management executives under the leadership of President Allen H. Frost and General Manager Frank A. Myers. In 1945 Copifyer Lithograph Corporation in Cleveland found that a several hundred per cent production increase in business in six years made it necessary to move into larger quarters. Company business and production operations had been scattered over several floors in two buildings. The new home of Copifyer is located at 1771 East 24th St. The two-story building is modern and contains 51,000 sq. ft. of floor space. Formerly, the building was occupied by the Corday & Gross Co., from which company Copifyer purchased it. Corday & Gross has leased a section of the ground floor space. Part of the second floor is leased to a photo-engraving concern. The balance of the building, however, is occupied by Copifyer whose working force now numbers 120 people.

Copifyer does a million dollars' worth of business annually. Its principal products are color process work, advertising literature, books, booklets, displays, calendars, portfolios, labels, maps and general commercial lithography. Copifyer's customers are located between New York and Chicago. During the war, Copifyer produced large amounts of lithography for the armed services.

Because departmental executives in printing plants are so vitally concerned with equipment layout and workflow through the plant, we are printing an account of how the plant was moved to a new building without serious interruption of work in progress.

Aside from the pre-planning which was done before the move was made, we want to call to the attention of our readers that Copifyer management executives enlisted the opinions and thoughts of the departmental foremen and their employees.

We believe the enlistment of the interest of departmental foremen in the planning of a new home is a fine thing. It may be true that this method may cause preliminary complications but it is worth all the time and trouble. It will pay off dividends to management because of the personal interest aroused in departmental executives. At its best, planning a new plant is arduous. In this case Copifyer executives knew what they were going to do and where each piece of equipment in the various departments would be placed before the moving started.

Balika Discusses Planning Procedure

Superintendent Andrew Balika[1] related that after the decision had been made by management to purchase a new home for Copifyer, President Allen H. Frost and his management personnel called in the foreman group. At this meeting it was arranged that all of the departmental foremen would look over the new building. Mr. Balika stated: "It is surprising what a group of 11 or 12 men will see that a group of four representing management don't see! I would advise any management executive that is going to move his plant to consider the foremen."

After the visit to the new plant building, said Mr. Balika, we told the foremen to make up plans of their departments which they thought would make ideal layouts. We set no boundaries. We explained to them that the present equipment plus whatever they thought was necessary for better production could be included in their prints.

All the foremen set about making up plans—some square, some oblong, and some other shapes—for their new proposed departments. They worked on them for a number of weeks. They secured the assistance of employees in their departments. They all got their heads together, because we knew that

[1]Revision of address delivered before convention of National Association of Photo-Lithographers, Philadelphia, November 1945.

Second Floor Layout Showing Arrangement of Offices, Art and Platemaking Departments in Plant of Copifyer Lithograph Corporation, Cleveland

The original planning sheet from which this engraving was made is 50 in. wide by 38 in. high. It is framed and hangs in one of the production offices alongside of the first floor plan shown in an accompanying illustration. The floor space was scaled to ¼ in. per ft. All of the equipment templates were cut from various color cardboard to scale size. The color of the cardboard pieces indicates the department in which the equipment is used.

At upper right center will be seen seven rectangles, each one in a different color. These represent the color code to identify the department in which each template is placed.

Accordingly,

A template is tan indicating Photo or Camera Dept.

B template is red indicating second floor bindery.

C template is chrome indicating Platemaking Dept.

D template is gray indicating Layout Dept.

E template is green indicating Color Correction and Etching Dept.

F template is blue indicating Art Dept.

G template is green indicating Offices.

Placing Equipment by Use of Templates

Now, we had a number of occasions where, when the plans had been presented, we would call the foremen in and say, "What will you do with this aisle?" They would say, "Oh, that is not too big; that is only 60 in." So we took these plans and each foreman listed every table, every piece of equipment, every chair, or every file, that they had within their department, listing by number and also by size. If it was 48 in. by 60 in. they listed them as 4 ft. by 5 ft. We then furnished each department with a sheet of colored cover stock. These sheets were also printed on the same scale of ¼ in. to a foot from the same plate that the blueprint was printed from on our master board.

The foreman then cut templates to the actual size of every table and every piece of equipment that existed in their departments. These were then stapled to their master sheet, which they prepared to submit to management. They then realized, by passing down actual models, cut to the same scale that their floor plan had been ruled at, that the space was considerably too much. These prints were then called in from the various foremen and checked over. It was surprising to find that they did not take into whatever plans were adopted must be satisfactory to the foremen and to the employees—as well as to management.

We then requested all the blueprints that went with our new building. The management group studied the plans on carpenter, plumbing and electrical work. We wanted to find out what we could do with present plumbing and what we couldn't do, to eliminate unnecessary expenses. After looking over the blueprints, the original drawings these blueprints were made from were obtained. The original drawings were enlarged to a scale of ¼ in. per ft. We then made offset plates from the drawings.

On the negatives we eliminated everything but the four extreme walls, posts and elevators. Any data, measurement or specification of any kind was opaqued off this negative. We called that our master plate. We then got some graph paper and enlarged it to spaces ⅛ in. apart on the fine line and ¼ in. apart on the heavy line. We made a negative in register to our master plate, for both the first and second floors. We then went to press with these plates representing both the first and second floors. We printed the graph lines in light blue, and the master drawing (walls and posts), in black. The entire floor plan showed every bit of construction including posts and walls. That gave us a base to start working on. We called them our master drawings. We had one for the first floor and one for the second floor. We then took those master drawings and keyed in red the existing building partitions.

We mentioned to the foremen that any wall they felt would be in the way would be knocked out and a new one put where they felt it should be. Approximately 25 per cent of the walls were salvaged; the rest were built new.

Preliminary Departmental Planning

We then took sections of these master drawings and gave each foreman a piece of this scaled paper—much larger than we anticipated they would need. These were mounted on what is known as quarter board. They were told then to incorporate all the ideas they had gotten together with their employees during the past two or three weeks. We gave each foreman the exact number of square feet they had at that time in their department. We also mentioned that in the post-war planning we proposed an increase in a given number of departments, and we also mentioned those that we did not feel would expand.

We gave the foremen a lot of paper on which to start their drawings. In some cases, the foreman will draw a square, larger than he needs, and start his plans by putting four tables or four pieces of equipment, one in each corner, and have a dance hall left in the center of his department. He will work from there in.

The Platemaking and Art Department equipment items are identified as follows:

Camera Dept.:

1. Color Camera
2. Color Copy Table
3. Color Processing Sink
4. Color Processing Dark Room
5. Halftone Camera
6. Halftone Copy Table
7. Halftone Processing Sink
8. Halftone Processing Dark Room
9. Line Camera
10. Line Copy Table
11. Line Processing Sink
12. Line Table
13. Plate and Film Storage

13a. Dryer

Color Correction and Etching Dept.

14. Tusche and Inspection
15. Process Light Tables
16. Etching Sink
17. Etching Sink
18. Dryer
19. Ben Day Stand
20. Glass Negative Storage

Platemaking Dept.

21. Deep Etch Room
22. Chemical Mixing
23. Vacuum Frame (Plates or sensitive film)
24. Arc Lights
25. Horizontal Whirler
26. Vertical Whirler
27. Developing Troughs
28. Inking Table
29. Drying and Etching
30. Vacuum Frame
31. Arc Lights
32. Inspection Table
33. Coated Plate Racks
34. Photo-Composing Machine
35. Photo-Composing Lock-Up Tables
36. Plate Storage Racks
37. Plate Finishing Table

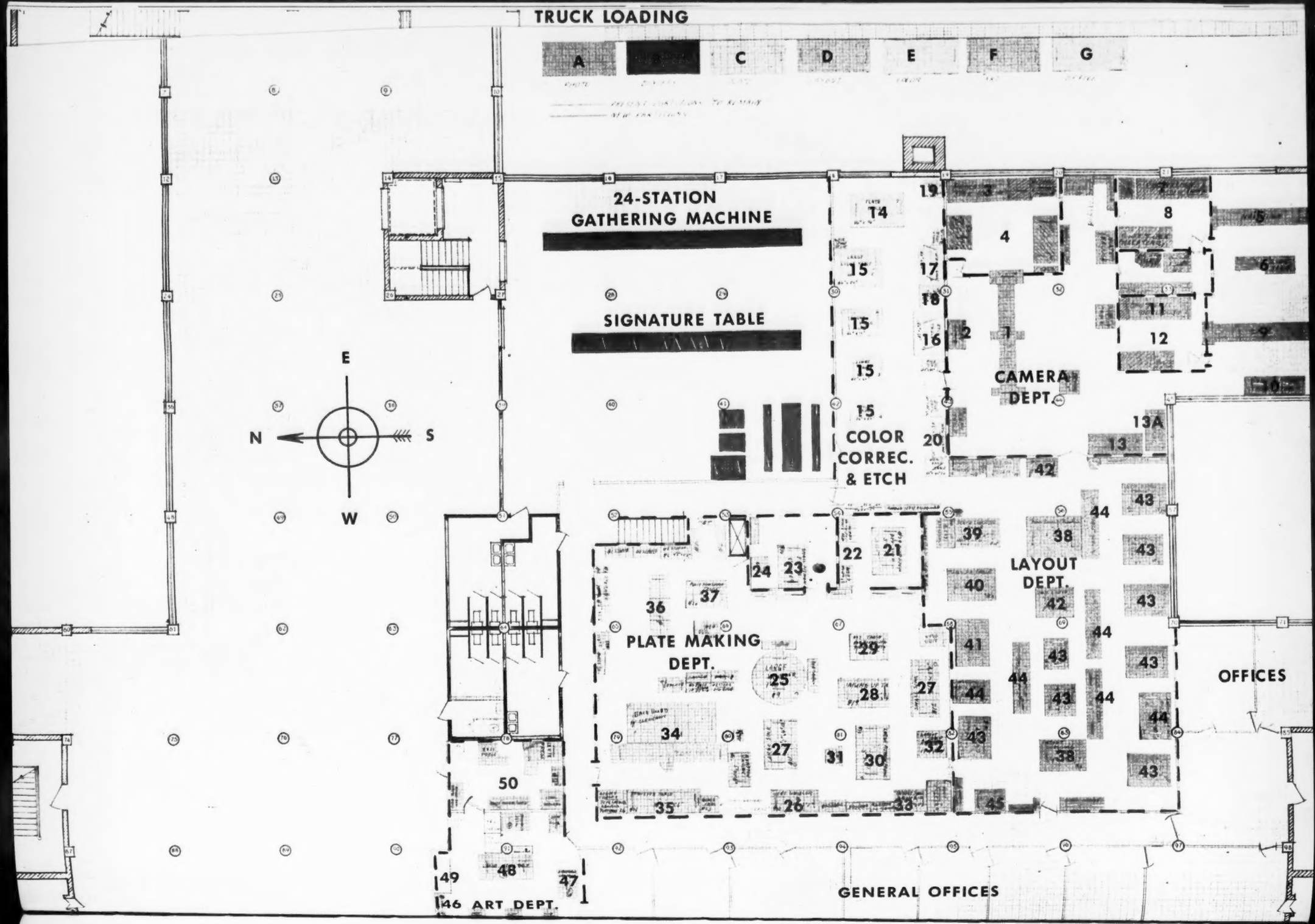
Layout Dept.

38. Line-Up Tables
39. Plate Inspection
40. Tusching Table
41. Staging Table
42. Layout Inspection Table
43. Strip and Opaque Tables
44. Work Tables
45. Blue Glass Bins

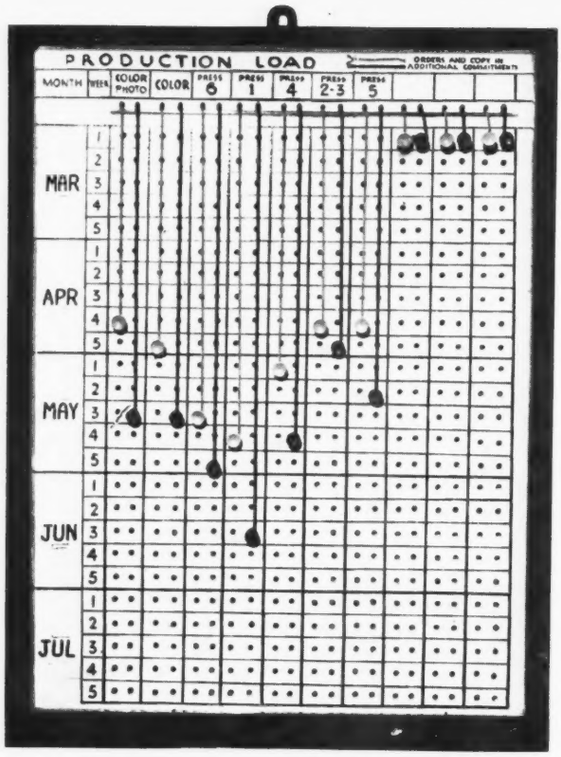
Art Dept.

46. Varityper Machines
47. Drawing Boards
48. Work Table
49. Packing and Wrapping
50. Filing Racks

Most mechanical executives, from time to time, are called upon to consider either laying out equipment in a new plant or to revamp existing equipment layouts. The layout can be predetermined by means of graph paper and templates cut to scale as shown in this illustration. To make easier the work of cutting the templates, the paper or cardboard should be ruled similarly to the sheet used for the room area. Graph paper may be purchased at engineering, artists' supply, book or stationery stores.



Second Floor Layout Showing Arrangement of Offices, Art and Platemaking Departments in Plant of Cuneo Press



Work Volume Barometer—This is a Miniature Reproduction of Production Load Board in the office of President Allen H. Frost, Copifyer Lithograph Corp., Cleveland. This board is referred to when sales meetings are held. It is a sort of barometer which indicates to the sales department when key departments in the plant are overloaded or are running out of work. When the pegs show that work in one or more departments is near the finished stage, the sales representatives then bend their efforts in evening up the plant production load by securing new work for the departments in which work is needed.

The framed board measures 17 in. by 22 in. As will be seen, spaces have been allotted for a five-month period of operation. The cards bearing the month are easily replaceable as needed. Across the top are box headings indicating the columns below. These are Month, Week, Color Photo and Color Correction departments, and the loads on the Presses in the Copifyer plant.

Each column is provided with two cords—one yellow and one black, each attached to a weight on the end of the cord back of the board.

The yellow cord and yellow golf tee indicate orders actually in the plant for which copy has been received. The black cord and golf tee indicate commitments. The location of each of the two golf tees in each column indicates the completion date for actual and promised orders.

Pressroom, Bindery, Shipping and Paper Stock Departmental Layout in Plant of Copifyer Lithograph Corporation, Cleveland

The original floor plan layout from which this engraving was made measures 50 in. wide by 38 in. high. It is framed and hangs in one of the production offices for ready reference. The floor space area is scaled to ¼ in. per ft.

The equipment templates for each department were cut from different colored cardboard to permit easy identification.

The color code is represented by the five rectangular swatches of cardboard shown in the horizontal row at upper right center. The departmental colors are as follows:

A template is yellow indicating Pressroom equipment.

B template is dark blue indicating Bindery equipment.

C template is light blue indicating Stock and Supplies

D template is tan indicating Shipping and Receiving.

E template is green indicating Offices.

The numbered equipment items are identified as follows:

Pressroom

1. 22x30 Harris Press
2. 36x48 Harris Press
3. 36x48 Harris Two-Color
4. 36x48 Harris Press
5. 41x54 Harris Two-Color
6. 46x68 Harris Two-Color
7. Inspection Tables
8. Paper Stock
9. Electric Lift Truck
10. Ink Cabinets
11. Pressroom Foreman's Office
12. Work in Process

Bindery

1. Folding Machines
2. Seybold Trimmer
3. Bracket Trimmer
4. Paper Drilling and Punching
5. Banding
6. Conveyor Belt
7. Wire Stitchers
8. Stitchers
9. Christensen 8—Station Gathering and Stitching Machine

Plant Superintendent Andrew Balika is standing before the chart.

consideration the floor work, loss of flow of work, or loss of steps. We proposed the idea of making up flow charts.

Drawing Flow Charts

Well, the first reaction we got was, "There is management with one of them damn ideas again!" It was a hard thing to sell at first. I called in two of the foremen and we sat down and started out with a simple job of printing. We started from the source, where the negatives would come into that department, and followed the job through step by step to see what does happen to that particular layout or that particular plate by the time it is finished and ready for press.

We indicated every operation in the flow chart in a different color by means of colored templates. After we made this print from the original plan that they submitted, they found there was a lot of backtracking. I asked them to come in and sit down, at their convenience, and make a tracing of the original plan, so that any of their good ideas would not be lost.

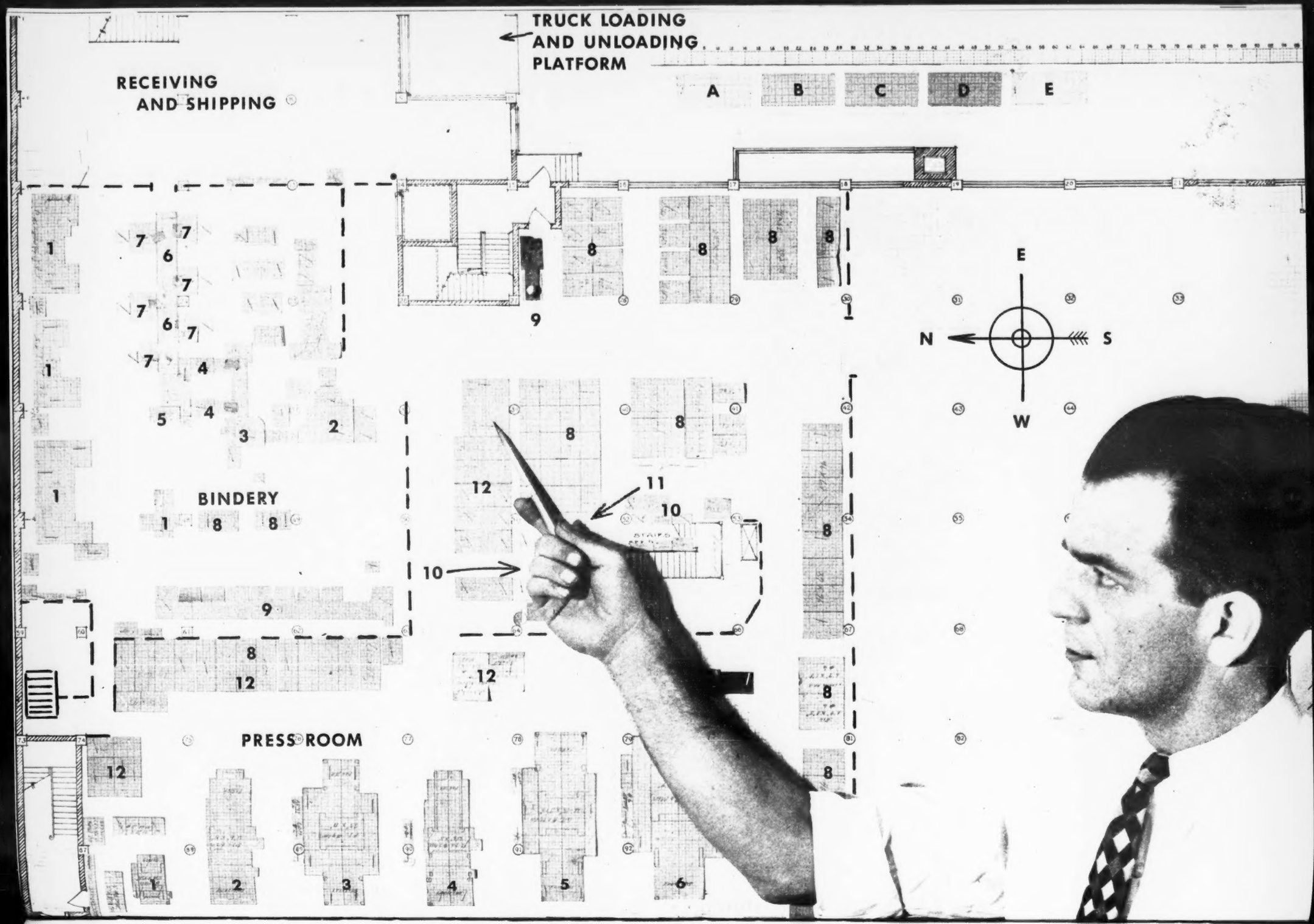
We then took off every template they had stapled to their departmental layout. We took another piece of this ruled paper and revised their entire floor plan, according to the chart we made.

Our foremen were not too quick to accept ideas given to them, until management was able to prove to them that by moving certain tables or certain pieces of equipment a lot of unnecessary steps could be eliminated. This elimination of unnecessary steps is a gain to the employee and certainly a gain to the company.

The difference in those two charts necessitated changing only three pieces of equipment. In the layout department we changed two inspector's tables—one for inspecting negatives or flats, and the other table for checking plates and general checkup. By moving the two tables apart, between 100 and 140 ft. of walking were eliminated. However, the checker insisted that the two tables should be side by side, because maybe the records could be kept in one file between the two tables. After making out the flow charts showing them on paper how much work or how much walking it would save them, we were able to sell them on the idea that a flow chart does show functions of each department. They agreed that that was the best way to do it.

Master Flow Charts

After this had been done with every department, a master flow chart of the whole plant was made up. We traced the job throughout the entire plant, going from one department to the next. Here a lot of things were seen that had to be changed. Individually,


TRUCK LOADING
AND UNLOADING
PLATFORM
RECEIVING
AND SHIPPING
A
B
C
D
E
BINDERY
PRESS ROOM
N
S
E
W

they did not show up, but as an overall picture from the time copy leaves the salesman and the art department, and goes through bindery and shipping, it created an entirely different picture.

We revised everything until that flow chart proved to us and to the employees and the foremen that we were saving them a lot of steps and in turn getting a better line of production from the management standpoint. This was accepted, and it will only be accepted when you can show them in black and white, or in color, with the statement: "Here is what it can do for you."

Locating Nerve Centers

The general plan then was gotten together, incorporating all the departments, and submitted to management who checked it over. It was then submitted to the foremen, and in turn to the entire personnel in the plant.

We then ran into the problem of locating a nerve center in the plate-making departments in relation to the art department, camera, color room, layout department and plate room. Our work calls for a lot of checking between the color-room foreman and the camera-room foreman; also between the camera-room foreman and the layout foremen, or plate-room foremen and the color room.

Securing Interdepartmental Working Plan

We had to rearrange our departments so that we would have the best inter-department working plan, which again would eliminate a lot of unnecessary steps. In some cases we revised partitions, for the sake of eliminating a lot of unnecessary steps. After all, these plans were partially accepted by the foremen, by management and by personnel, because of a number of corrections that we felt should be made.

Testing Pressroom Layout

We then decided to check and see whether what we were putting on paper would function. On the master drawing were a lot of posts that exist throughout the entire building. It is easy enough to measure a press 31 ft. long by 12 ft. wide but one can't always anticipate unforeseen obstructions.

One of the gentlemen in the management group suggested making up some dummy posts. Large zinc plates the same 18 in. diam. as those throughout the entire building were rolled up. These posts were placed in our old location in relation to the presses, the same as they would be in the new building. Things were found that were not anticipated when the scale models were drawn on paper. In the pressroom we checked equipment position and every place that the men had to walk. In some cases a post was in the way. The press locations had to be rearranged, moved out another foot, or back 6 in.

Contractors Make Suggestions

By this time we figured we had a pretty concrete plan. We were ready to submit it to the contractors. We made all our drawings ourselves. The first drawing was for carpenter and masonry work. A contractor was called in to whom our ideas were submitted. He gave us his ideas. Where they were better, we considered them and redrew our plans.

A plumbing contractor was called in. He checked the drains; he pointed out the departments that are adjacent to each other having troughs and etching tables. A suggestion was made to place the equipment back to back against the wall, so that we could have one drain pipe and one vent pipe to take care of the water and drainage for two different departments.

Electricians were called in. Plans were submitted to them showing where each piece of equipment was going, where we were using fluorescent lamps, where duplex outlets were

Multiple Station Gathering Machine in bindery section of Copifyer Lithograph Corp., Cleveland. This machine was designed and built in Copifyer's plant. There are 24 stations (eight in each of three sections). It was constructed of pipe and steel framework with tempered oil-proof Masonite. The Masonite is waxed to facilitate sliding signatures and for durability. The moving element which conveys the signatures along the trough-like depression consists of an endless sprocket chain mounted on wheels at either end of the three conveyor sections. Spaced at regular 15 in. intervals and projecting upwardly from the chain are 3 in. pins which propel the signatures along toward the delivery end of the conveyor.

The gathering machine is divided into three sections, the furthest away in the picture is called the idler section; the next is called the middle section, and the one nearest you in the picture is called the drive section. Each section is provided with eight stations. Under the drive section is located the motor and a Llewellyn speed changer for regulating the traveling speed of the chain.

The single-board stations are adjustable in spacing from one to another. The reason for making them adjustable is that one operator will occupy more physical space than her neighbor who might be of slight build. The stations are slidable by means of clamps fastened to the station boards. The clamps slide on pipe mounted underneath the conveyor top. One pipe leg supports each station board.

A wire cable extends horizontally throughout the length of the conveyor, centrally and within easy grasping reach of any one of the operators. In case an operator misses placing a signature in its proper sequence, she depresses the cable which throws a switch to stop the motor driving the conveyor chain. Likewise, it requires only the depressing of the cable to start the conveyor in motion again.

As the assembled signatures reach the end of the conveyor chain, they slide down a chute where they are picked up in convenient bunches. They are then jogged on a Syntron jogger, afterwards being placed on a waiting skid for delivery to the trimming machine.

When the gathering machine is in operation, one girl circulates among the operators to replenish the supply of signatures on all the station boards. The signatures are obtained from skids placed behind the conveyor operators.

View in One Section of Bindery, Copifyer Lithograph Corp., Cleveland. At left is shown rear view of Brackett Trimming Machine, together with conveyor belt and trimmings receptacle. To give our readers some idea as to the capacity of this machine, it recently trimmed 5000 collated 128 page books, trimmed three sides and stitched in 40 min. The girls in the picture, however, are not working from the Brackett Trimmer. The books which have been trimmed are being drilled and banded previous to wrapping in bundles.

wanted, where we would have to have motors, together with horsepower and phase. All these were indicated on the prints.

They made suggestions which were incorporated in our plans. It was understood by all the foremen that their plans were subject to revision on the recommendation of any of the contractors.

In our move we placed contracts direct with the various contractors—one for carpentry and mason work, one for electrical, one for plumbing, another for painting. At one time we had workmen from nine different trades unions in the building. Unless a lithographic plant has executives who are familiar with construction work and who are willing to take the responsibility and devote a major portion of their time to contractor supervision, it would be cheaper to have a general contractor. Let him place the sub-contracts and oversee everything done by them.

After everything was accepted by the management and foremen groups on the recommendations of the plumbers, carpenters and electricians, we submitted final drawings to all of the contractors, and duplicate set to the foremen on the job. A triplicate was placed in our files.

When alterations were started the contractors did not always have enough men available to do the job. So at the beginning our plans did not function as smoothly as we would have liked. In many cases twice as many carpenters, twice as many electricians, and twice as many plumbers could have been used to speed up the work. As anybody else would be in times such as they are today, we were at the mercy of the contractor and his ability to procure men to do the job.

Having submitted plans and started carpenter, masonry, plumbing and electrical work, planning work was started within the plant. From what we could see on paper we knew that we were going to have an ideal plant. We wanted anything that we were going to build to be as good or better than anything we had seen. A sheet metal contractor was called in. A plan was submitted to him for making some stainless steel sinks for the dark rooms. It was almost impossible to buy cypress wood. It was more costly to have stainless steel troughs made, but the little difference in price certainly warranted having the stainless steel sinks made.

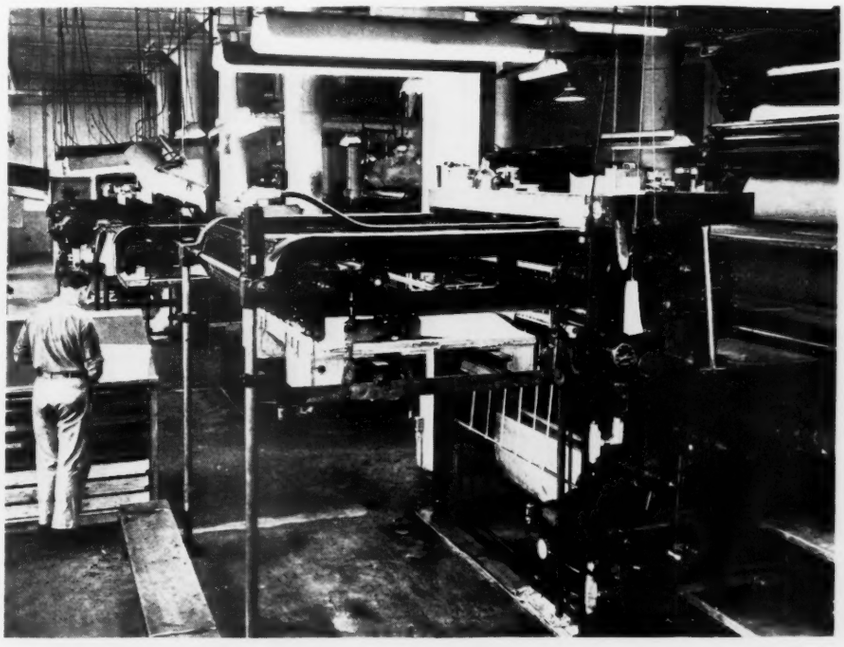
Making the Darkroom Sinks

These sinks were made in two pieces. In one sink was built a separation for hypo stop bath and water. In the other sink a separation wall for developer was fitted in. In these units were incorporated a refrigeration coil. Refrigeration experts were called in who figured out how much refrigeration was necessary, and who recommended suitable kinds of units. The refrigeration man went over to the sheet metal works and took care of the installation of the coils.

Various tables, sinks and troughs were made of stainless steel, of angle iron, anything that would be an improvement over what we used or had seen. By this time the carpenters, electricians and plumbers were getting pretty well along with their program, so we checked with the manufacturers of various machinery to find out how long it would take them to tear down our old equipment, check it over and re-erect it.

Planning Press Moves

The big problem was in moving the presses since press production had to be maintained. We operate all Harris equipment, so the Harris-Seybold Co. was called and asked for information to help us in the move. An over-all picture of how many elapsed days it



View from One End of Press Line, Copifyer Lithograph Corp., Cleveland. In line are six Harris offset presses. The nearest one is a 46 in. by 68 in. two-color press. The delivery end of all the presses faces a large window. Fluorescent lighting is provided for night shifts and for cloudy days.

would take to move the presses one at a time was figured out.

We have six presses— three two-color and three single color. From the production standpoint, we figured out which press we could spare first. A schedule was set-up showing which presses to move first, what date to start tearing them down, when to move, when erection was to start and finish. The total elapsed time ran from 84 to 90 days. We knew when our lease was to expire at the former location, so we worked backwards, knowing that the presses would take the longest time.

After making the temporary plan, we called the movers and went over our problem with them. The movers were taken over to the new building and shown where the equipment was to be placed. We let them see what problems they might encounter in moving the equipment in. In the old building they could see what problems they were to have in moving the equipment out.

All the elevators and sizes of doors were measured and the capacity of elevators in both buildings was checked so they would have a complete picture in black and white available at all times to find out whether they would have to dismantle the presses in two, three, ten or in a hundred pieces, in order to get them out through the door into the elevator and out and into the new building.

Replacement Parts Ordering

Letters were sent to various equipment manufacturers throughout the country, requesting a reservation of their mechanics' time to come into our plant to tear down equipment. In many cases we could not plan when we wanted to tear it down. Our schedule had to be adjusted to the dates we could get the mechanics. As the mechanics came in it was discovered that a number of parts on the presses, the photo-composing machine and on the cameras could stand replacement. Orders for new parts were placed wherever it was felt necessary or where the parts were on the "shady side."

We kept an open order. Any time a mechanic found a part or two that needed replacement we immediately wired and ordered the part.

Centralized Record

About this time we started accumulating a lot of plans, purchase orders and statements. A tab index book was made up. In it were listed carpenter, plumber, electrician, motors, miscellaneous, purchase order, technical data, statements, and numerous other items. Everything pertaining to moving was put in this one book, so that any foreman in the organization or anybody that had anything to do with this move could go into the safe, take the book and find any information he needed in the move. This book was kept open so that everybody knew what was going on at all times. We called it "the Brain."

Paint Color Determination

Having construction well under way, various paint company representatives were asked to submit color scheme kits showing three dimensions of a room. With these models people could see each color scheme and visualize what it would look like in the room. Each foreman was asked to show all the people in his department the various models. They were asked to select the color combinations they felt would be best from the standpoint of working conditions. It is surprising how many different departments picked the same color scheme. We let them know that in all cases we proposed to have a white ceiling. The walls were left to their choosing. After they had selected their colors, a couple of us from management made a trip to General Electric's laboratory, Nela Park, Cleveland, where the colors were checked for absorption and reflection of light. We were very lucky; the colors checked well. In the rooms, where we needed subdued light, we were getting the least amount of reflection. Where we could stand light, we were getting all we could take. I don't believe we had to change any of the color schemes selected by the foremen and employees.

The departments are painted according to their choosing. You may walk out of one department that is in green and gray, and go to one which is ivory and gray. Had management told the plant personnel that it was going to use the colors it liked, I don't believe we would have had the same reaction that we are getting. They all

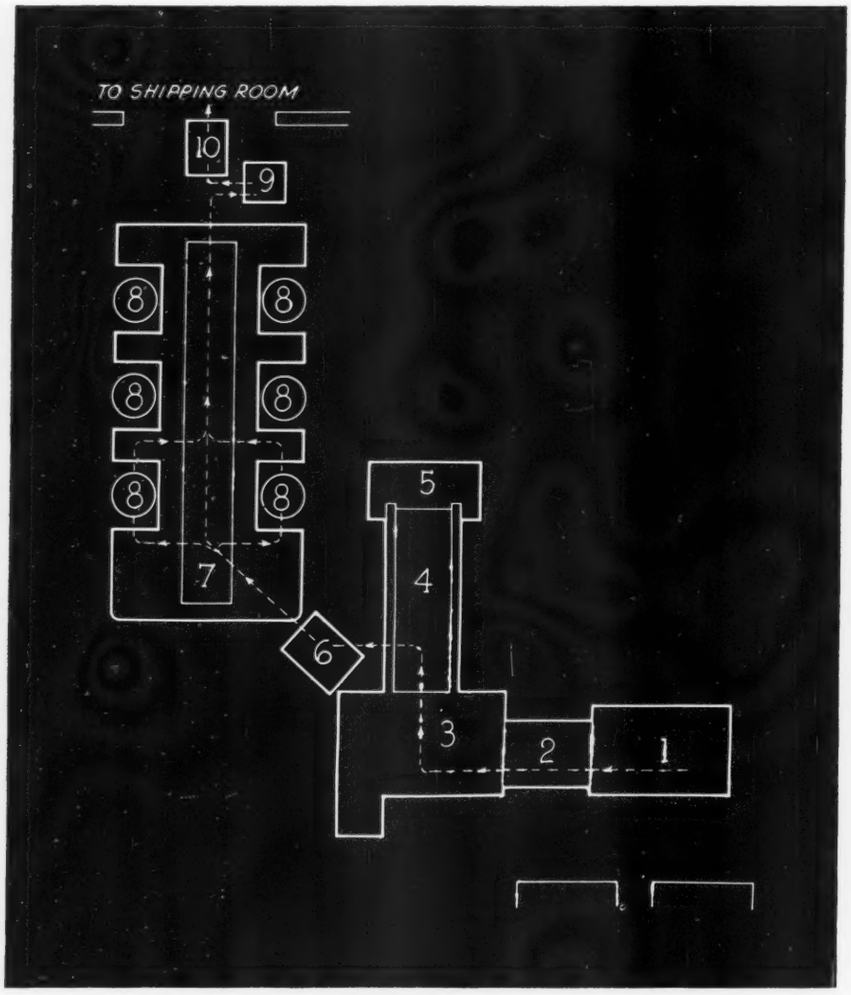


Diagram (not drawn to scale) representing production flow in one section of the bindery, Copifyer Lithograph Corp., Cleveland. The arrangement shown here is for volume production of booklets. The arrangement of this equipment can also be modified to suit other jobs which might require trimming, punching, stitching, banding or bundling and the like. The equipment items are represented as follows:

1—Seybold cutter.
2—Slide table.
3—Brackett trimmer.
4—Conveyor belt.
5—Trimmings receptacle.
6—Slide table.
7—Conveyor belt.
8—Monitor stitchers.
9—Bunn banding machine.
10—Skid to shipping room.

feel that they had a part in this program.

We then called the painting contractors. We were able by this time to show them what our partitions would be like, where they would be located, how many linear feet of partitions we would have, and what they would have to paint. They were able to arrive at a very close approximation as to the cost of painting.

A complete list of specifications was given to the contractor. The list indicated the color combination the layout department was to be painted in and what combination the camera, the plate, the pressroom, the bindery, shipping, the art room, the offices were to be painted. Having turned the work over to the contractor we just forgot about the rest of the painting job.

I then went through the plant and appointed various employees, picked at random, to itemize as they went along during the day the various things they could think of that we might forget in moving, such as toilets, showers, candy machines, pop machines, Venetian blinds, traffic aisles, fire extinguishers, and various things that you are apt to overlook in a program as big as what we had confronting us.

We received many lists, and there was a lot of duplication. However, we condensed it. We had that particular sheet put in our "brain"—that is the book—so that we could alway check back, which we are doing today, in the tail-end of our moving, to see that every one of those items has been given attention.

Delegating Work Authority

Responsibility was then divided among four people. One man was man was responsible for the painting, another man was responsible for the carpenter work and masonry; a third man was responsible for the painting and a fourth man for the electrical work. We did that so that no one in management would go into our new plant and give the carpenter, the electrician or the plumber any instructions, and then another man would come along five minutes later and give him different instructions. We wanted to make sure that any instructions given to the contractors were going through one channel. We didn't do that the first week, but we caught on fast that we had better do so.

One of the four was delegated to make changes on the original drawings. Anything that was mentioned to the plumber or the electrician or the carpenter was written down, put into this book, and at such time that we felt we had a little time to do it, we incorporated all these changes into our master drawings. However, one individual is responsible for that drawing all the way through. It worked out very well.

I would advise anybody who contemplates moving his plant not to have more than one person instruct the contractors. It is confusing. The way conditions are today, they are just as apt to pick up their tools and walk off the job.

We measured all the steel shelving in our plant, checked it for size, checked to see whether or not various departments needed shelving. We gave instructions that we didn't want any shelving nailed on walls by anybody but men in our maintenance crew.

Moving the Presses

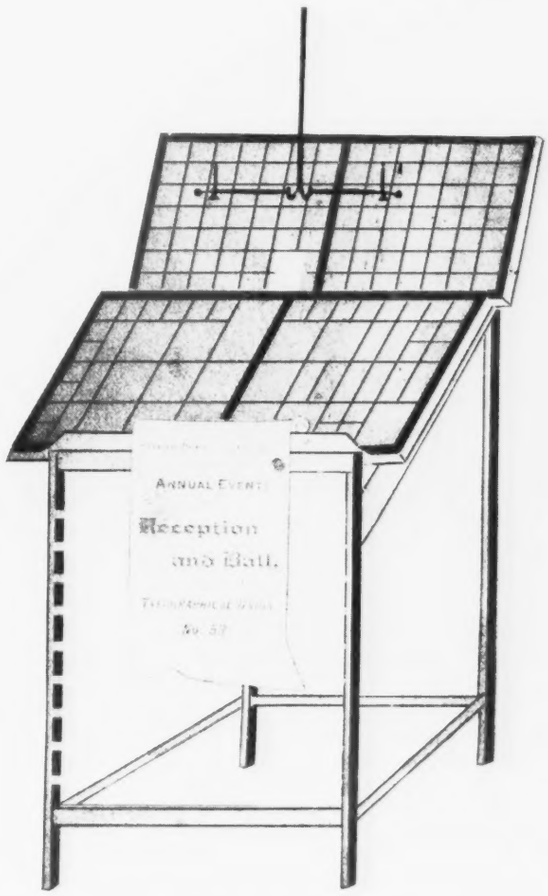
As I mentioned before, we decided to move the presses first. That was determined by the total elapsed days it would take to move all our presses. We set about moving one press at a time. As the plant was nearing completion within a day or two, we then started tearing down our second press. We carried that program out throughout the entire moving program, as far as the presses were concerned.

Moving the Gallery

The second step was to move one of the cameras. It wasn't planned in the original scheme of things, but a mechanic came in to work on the photo-composing machine. While he was available, we asked that he move that camera. We have three cameras and in moving one, two were kept in operation.

Moving Other Departments

The fourth move consisted of transferring the art, office, color room and various departments with the exception of the binderies. All moves were planned to start on a Friday, checking various things in the department, packing them up, to move on a Saturday and Sunday. All the foremen were told to pack all work in process and be responsible, so that when we got into our new plant, they could put their hands on it immediately and go to work on it. Most of the foremen chose to take the work in process in their own cars, and those that had



Type Cases and Stand Constructed from Brass Rule — In the 1890s, constructing pictures from brass rule and bending rule constituted quite an art. Among the many specimens of this art was one shown in miniature above. This represented the first of a four page round-cornered and die-cut invitation to attend a reception and ball given by Cleveland Typo Union No. 53, at Germania Hall, on January 26, 1891. The type cases and stand were printed in dark brown ink; the gas lamp fixture and dark shading in the cases were printed in a lighter shade of brown. Close examination of the rule work does not reveal much evidence of rule joints — the fitting having been done very carefully. We have not been informed who did the work.

too much had some of their helpers take their cars. For instance, our camera man took his lens, densitometer and screens in his own car.

Equipment Identification

At this point we made another thorough check. Each foreman checked his inventory list to see that every piece of equipment was numbered. I may mention that on the drawings of each department, which were cut to size, they also listed the number of that particular equipment—whether it was 5, 6, 7, or 20. That number was written right on top of each of these colored templates shown in the accompanying floor plan layouts. Each department was given a different colored stock. When one looks at the master boards, he immediately gets a picture of the plate room—the plate room equipment is represented by yellow paper templates. Any place in the pressroom where we have a plate rack, it is indicated in yellow. Anything at all that belongs to the plate department is indicated by yellow cardboard templates.

Two adjacent departments are in colors such that they stand out one away from the other. (See explanations of color code in accompanying floor plan diagrams.)

When ready to move equipment the movers came in and started tearing down under the supervision of the mechanics from the various concerns whose services had been reserved. They skidded all the heavy equipment and got it ready to move. When a good load or two had been made ready the mover was called, and he had his truck there the very next morning.

A lot of our equipment was too heavy for the elevators, so the movers rigged up the elevators to about double the capacity they thought was necessary. I will say at this time that we were very fortunate. I don't know of one piece—table, machine, or anything—that got as much as one scratch on it.

Positioning the Presses

To position the presses, we made a template of the base of each press in the new pressroom. We also made frames, extending from these templates, to show where the press delivery and the feeder ended. That was laid out on the floor and crayoned in, so that when the movers brought in the equipment, they could place it on those markings.

We found at that time that we were making corrections to our original drawing. Something had gone wrong, but we saw it on the floor plan, and we could rectify our mistakes before 10 T. of equipment were put on the floor. We went through every department and layout on the floor with chalk to scale every table, every file, every piece of equipment, and numbered each one.

Moving—Dispatching Receiving Crews

Two crews were then made up—one a dispatching crew in the old building and the other a receiving crew in the new building. In the morning the two crews would go over the plans of what they were going to move that day and the sequence in which various pieces of equipment should be moved.

This dispatching crew would go over to the old building and inform the movers what to load on first. We would receive a telephone call respecting the equipment about to be moved. As the receiving crew got it, we would inform the movers in which department it was to be placed. They knew where every department was because we had instructed them to that effect. They took the equipment that was marked No. 7 and carried it to the outline of that equipment numbered 7 in chalk on the floor. We avoided a lot of congestion in that way.

We made a template of the press, drew it on the floor, and let the electrician drop his line from the ceiling drill into the concrete and put his pipes in from the master drawings. That really worked out well.

One of our problems was that we needed hot water for developing plates. The hot water heating unit we used in conjunction with the steam lines was delayed. We had to go to a tenant in the building, borrow hot water from him with a couple of hundred feet of garden hose. Eight or nine paper skids were piled on top of each other, and a big drum was placed on top of the skids to obtain necessary flow pressure of the water.

As for the two drinking fountains that we considered one time, we said, "Oh, we will get to that later." We left them out. We had to redrill through concrete that had already been filled in.

One casualty in our move was that we had some type cases boxed up with a label on each box. The label was torn off, and the movers, not knowing what was in the box turned it upside down.

With all our notes when the plumbing was nearing completion, we forgot a dressing room for the colored help. The new partitions necessitated relocation of sprinkler heads after we moved and had put walls in. I bring these things out because we thought we had a plan that covered everything. We left out a lot of things.

Mechanical Executives

The editor invites you to submit production or mechanical ideas which have been revised in your plant. You may help other executives with their work.

Control Methods

In the plant of Copifyer means are provided to eliminate uncertainties in processing, errors in judgment and to avoid unnecessary physical drudgery on the part of employees.

Among the control devices used in the Copifyer plant is a control board[2] installed by William C. Stone, secretary and production manager. In his office the board is posted on a wall. The board measures 8 ft. by 4 ft. At the left of the board is a vertical column divided into 12 stubs—each one representing an operation in the plant. Extending across the top of the board are columns headed from No. 1 to No. 31 representing each day of the month. Below each day of the month heading and extending horizontally across the board hooks are placed at evenly spaced distances. Small tickets (2¼ in. by 2¼ in.), punched for hanging on these hooks, contain estimated hours and pertinent information about each job in the plant. As each operation, such as art, typesetting, camera, platemaking, presswork and bindery is completed, the tickets are moved along horizontally from column to column. It is thus possible for Mr. Stone or anyone connected with management, sales or production to see how the job is progressing through the plant in accordance with the original time estimates. In other words, this board provides a running record of all the jobs in the plant.

"With respect to the creation of the work flow charts," said General Manager Frank Myers, "we think they are entirely impersonal things. We are sure such a chart indicates in the end the shortest path of travel for the work. We made, in some instances, 13 layouts before we secured that shortest path. Being impersonal, the flow charts settle all arguments as to who is right—they show where equipment should be placed.

"In the bindery," explained Mr. Myers, "the equipment has been designed to permit sliding all work along from operation to operation. No lifting is necessary. We also try, wherever possible, to standardize production to eliminate errors in judgment by the human element. This makes work easier for the employee and permits him to be more familiar with materials, plant routine and his work.

"In the camera department we use Totalux and Hurletron light accumulators which measure light by *volume* rather than by *time* for camera exposures. Arc lamps are not a constant source of light. Variations of 5 or 10

[2]See November 1944 issue of *Printing Equipment Engineer*.

per cent of light would cause a variation in negative quality.

"In doing color work, sometimes the films expand in area according to temperature and relative humidity in the plate-making department so that it would be difficult to maintain register in the films. We use a bank of infra-red lamps to shrink the film to its proper size. We anticipate using a film at an early date the base of which is stable under heat and humidity.

"We also use a humidigraph Sword Indicator for testing the moisture content of paper. This instrument can be thrust any place into a skid of paper without uncovering it, and shows whether the paper has the proper moisture content to print color process work.

"In the pressroom, we maintain a recording dry and wet bulb hygrometer. We have operated this instrument over a period of years and have found that the recordings follow the same pattern year after year. We have more trouble with humidity in the summer than in the winter time. These recordings are valuable to us in buying paper at different seasons since we can specify the moisture content of the paper suited to that season for best performance in the pressroom.

"Another instrument used in our plant is called the Register Rule which was originally developed by the Lithographic Technical Foundation. This rule is used for accurate measurement of film stretch or image dimension on the offset plate and on the printed sheet. It can be used to measure paper stretch around or across the press cylinder within 0.005 in. accuracy. Improper printing of the first color in many cases is responsible for register troubles. The misregister is not apparent until the printing of the second color takes place. Thus in printing the first impression of a color job exact measurements on the printing plate and on the paper will be the means for detecting any sheet deformation occurring during the first impression. By taking measurements after each succeeding color, any changes in the paper will be indicated and corrective means can be taken to secure proper register.

"We employ other means for obtaining standardized operating procedure but these will be sufficient to give the reader some idea as to our general policy."

Printing Equipment and Supplies

Permanent Flexibility Claimed

TESTS in large and small print shops and binderies were conducted by the manufacturers of Pliatab Cold Padding Glue to obtain a formula which would have long storage life and permanent flexibility. As a result of experiments with synthetic rubber, resins, animal glues, etc., as a raw material base, the maker selected a liquid plastic synthetic resin for the Pliatab formula because of its resistance to extremes of temperature and climatic conditions. The raw material is a war-born plastic resin.

The use of plasticizing agents states manufacturer, overcomes crystallization, hardening and brittleness and also imparts greater covering qualities. According to the manufacturer, one gallon of Pliatab will cover 200 sq. ft. of padding area. The compound can be applied by hand brushing or spray gun.

Improved and Streamlined Proof Press

THE No. 3 Vandercook hand-operated Proof Press, reports Vandercook & Sons, Inc., has been improved and streamlined and is now in production. The improvements include a more rigid cylinder carriage, improved cylinder trip, and streamlined bed and steel cabinet. Synthetic rubber inking rollers are standard equipment. Automatic inking system, grippers and guides. Bed size of the press is 15 in. by 35 in. Sheet size is 14¾ in. by 20 in. Form size is 14 in. by 18 in. Floor space, 2 ft. 2 in. by 6 ft. 6 in. Shipping weight is 1150 lbs. Press intended to be used for general proving within its size range; for making process color proofs; for checking plates and for preliminary makeready and proving of forms containing fine screen halftones or type.

View of Vandercook Improved and Streamlined No. 3 Proving Press. Form size is 14 in. by 18 in.

Infra-Matic Stereo Mat Automatic Pre-Shrinker

INFRA-MATIC PRODUCTS CO. has announced the Infra-Matic Drier, a device for pre-shrinking molded stereotype mats. The extra shrinkage required in many newspaper and stereotype platemaking plants is obtained with the Infra-Matic Drier while the mat is flat (as molded) and thus avoids small fractures in the mat which occur when the mat is flexed during pre-shrinkage operations. Manufacturer states that the time required for pre-shrinkage of the mat can be pre-set by adjusting a time knob on the front of the control box. For instance, from 45 sec. to 1 min. required to obtain 5/16 in. shrinkage.

In the Infra-Matic Drier infra-red radiant heat is employed to dry the mat from the inside out, thus bringing the moisture from the center to the surface. The drying lamps are so placed that the mat is fully covered front and back. The Drier, it is claimed, is electronically timed and can be set from 0 to approx. 160 sec. with an accuracy of 1/120 sec. variation on a 60 cy. circuit. After the required time elapses, the cabinet door opens automatically and the mat is delivered at the front of the sliding

View of Infra-Matic Stereotype Mat Pre-Shrinker. Employs infra-red heat and is electronically controlled. To pre-shrink a mat, the operator places the mat in the rack and closes the door. At the end of pre-shrinkage time the door is opened automatically and the mat is delivered at front of sliding rack.

rack ready to be packed. At this time the lamps are shut off automatically.

The Infra-Matic Drier consumes 2 k.w. per leg on a 3 ph., 4 wire, 60 cy. circuit while shrinking the mat. When not in use the only current consumed is by a small electronic tube which keeps the timer warm. Current consumed by the tube is comparable to that consumed by an electric clock.

When completely shut down, the Infra-Matic Drier needs 1 min. after the current is again turned on to allow the electronic tube to warm up.

Dimensions of the Infra-Matic Drier are: 32 in. wide, 28 in. deep, and 5 ft. 8 in. high.

Further information may be obtained from Infra-Matic Products direct or through *Printing Equipment Engineer.*

Revolvator Hydraulic Lift

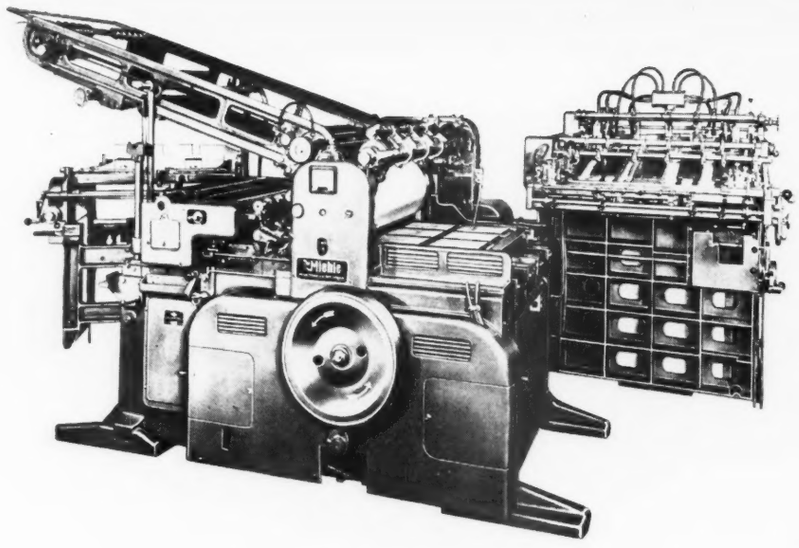
AN interesting example of the use of a Revolvator hydraulic elevator for servicing power trucks is seen in this photograph.

In this installation the platform consists of one longitudinal H-Beam and one transverse H-Beam. Tops of these

View of Revolvator hydraulic elevator raising power truck with load from ground to dock level.

beams are flush with floor when elevator is not in use, a sump pit being provided for this purpose. Power truck to be serviced is driven over rear axle coming to rest directly over the transverse H-Beam. By means of adjustable axle blocks, two under front axle and one under rear axle, the power truck is held in position on the elevator with wheels turning free when elevator is raised to servicing position.

As is shown in the picture a steel safety guard drops to vertical position when elevator is raised, the bottom of guard resting on bottom of sump pit. This guard must be folded along side of the H-Beam when elevator is lowered.



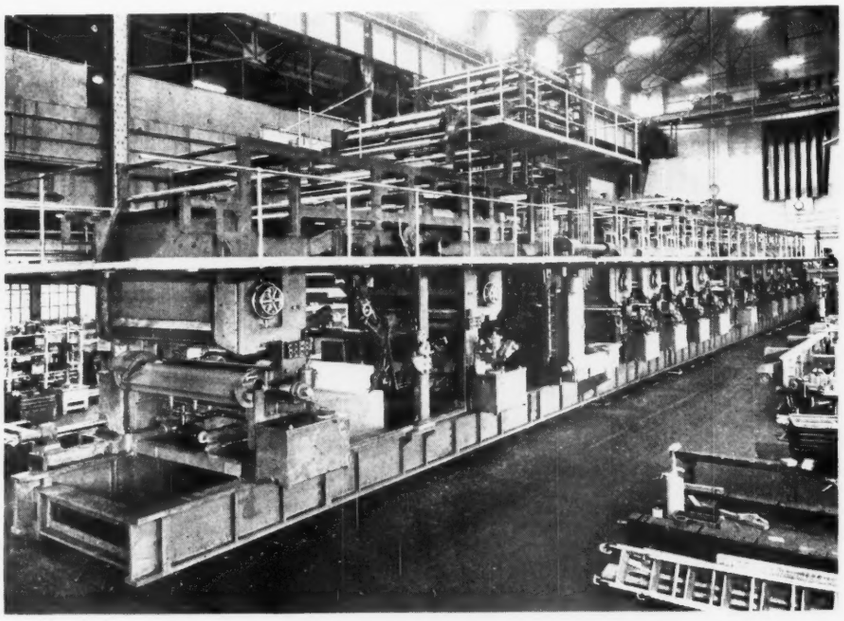
View of No. 29 Miehle 22x28 Typographic Flatbed Printing Press in open position. Printing speeds ranging from 2500 to 4500 imp. per hr. are claimed. Supplied with Dexter Feeder permitting sheet-by-sheet or stream feeding.

No. 29 Miehle 22 x 28 Letterpress

MIEHLE Printing Press & Mfg. Co. has announced that its 22 x 28 No. 29 letterpress, in many respects, is a companion press to the improved Miehle Vertical since it takes twice the sheet size of the Vertical with approximately the same average production.

The No. 29 Letterpress is claimed to have printing speeds from 2500 to 4500 impressions per hour. This is a newly designed machine having a completely new bed motion developed by Miehle engineers.

A simplified Dexter Feeder incorporates both sheet-by-sheet and stream feeding. It is equipped with a new inking mechanism and positive chain



First large rotary web press to be completed since end of war. Shipped by R. Hoe & Co. recently to St. Louis ***Post-Dispatch,*** this 12-unit rotogravure press prints in three sizes, full page, tabloid or supplement size, in a combination of monotone and color. Monotone mechanism is at left, while color mechanism is at right of 125 ft. press. It weighs 275 T.

After inspection and operation testing, the press was shipped in sections. Sections weighing up to 12 T. each were shipped intact.

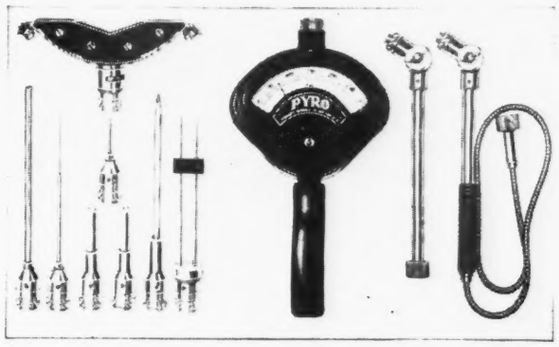
Press leads were checked in the factory. Paper webs from 5 ft. to 6 ft. wide but only 0.003 in. thick are run through the printing units, slit, collated, folded, cut off and delivered at speeds in excess of 1000 ft. per min. At full capacity, the ***Post-Dispatch*** press will have almost 500 ft. of paper threaded through it at all times.

delivery. The press is designed with great impressional strength. Accessibility to operating adjustments has been provided.

To insure accurate register, a transfer mechanism is geared into the bed motion drive.

The press is equipped with automatic lubrication.

Size specifications for the Miehle No. 29 Typographic Flatbed Press are as follows: Overall width—Operating position, 5 ft. 5 in.; Open position, 8 ft. 10 in. Overall length—Operating position, 11 ft. 11 in.; Open position, 15 ft. 1 in. Overall height—Operating position, 5 ft. 7½ in.; Delivery raised, 6 ft. 3 in.



View of Pyro Surface Pyrometer thermocouples available and two types of extension arms.

Pyro Surface Pyrometer Announced

THE Pyrometer Instrument Co. states its Pyro Surface Pyrometer has been designed to meet the need for precision accuracy, durability and ease of operation. It is constructed in a shock, moisture and dust-proof shielded steel housing which is immune to external magnetic influence. The 4¾ in. diam. indicator with a 4 in. direct reading scale provides easy reading.

An internal automatic cold and junction compensator is standard equipment.

Eight different thermocouples are available together with two types of extension arms. These are all interchangeable without adjustment or recalibration, together with a selection of five different temperature ranges from 0 to 300 deg. F., and 0 to 1200 deg. F. for any metallic or non-metallic surface temperature problem. The interchangeable thermocouples have been designed to eliminate temperature gradient errors. All thermocouple wires have been checked to plus or minus 2 deg. F. accuracy.

A copy of a new illustrated catalog No. 160 will be sent upon request to Pyrometer Instrument Co. direct, or *Printing Equipment Engineer* will gladly pass along your request.

Towmotor With Side-Mounted Motor

A NEW addition to the lift trucks made by Towmotor Corporation is the Model LT-35. The feature of this lift truck is that the motor is side-mounted so as to cut the wheelbase length to 35 in. Two wheels on the steering axle permit short turning radius. Towmotor claims the reduction in overall length does not sacrifice strength.

The Model LT-35 weighs 2800 lbs. and will lift, carry and stack a 1500 or 2000 lb. load in tight aisleways, elevators and within the confines of high-way trucks and freight cars. Its weight makes operation possible on 2 T. capacity elevators and in multi-story buildings with low to medium load limits. Lifting and tilting mechanisms are hydraulic.

The side mounting of the motor places the operator at one side of the truck. The driver's seat is protected front and rear: the driver's compartment is reached by a step 9½ in. high.

Towmotor claims that the engine, transmission and axle units are easily accessible for maintenance inspections and adjustments. Removal of a side plate permits adjustments to electrical apparatus and the carburetor. Clutch replacement can be made without moving either engine or transmission.

View of Towmotor with motor mounted at one side of truck delivering paper into road truck body. The short turning radius of the Model LT-35 shown here permits the truck to lift, carry and stack a 1500 to 2000 lb. load in tight quarters.

Extension of Vogue

A further extension of the popular Vogue family is announced by Intertype Corporation. This time it is Medium Condensed as shown here in the 18-point size.

Vogue Medium Condensed

The 24, 30 and 36-point sizes are now in process of manufacture. When completed the range will include the usual progression of sizes from 12 to 60 point.

Intertype Improved First Elevator Level Link

INTERTYPE Corporation has announced an improved first elevator lever link. The principal improvement consists of a new compression spring which permits approximately equal pressure of the first elevator at the time when the matrix line is raised during justification and casting operations. The link spring is made of a special material and is wound to Intertype's specifications to insure uniform pressure on the matrix lugs in engagement with the mold aligning groove in all three alignment positions—Normal, Auxiliary or Headletter, and High. The distance between the Normal and High alignment positions is approx. 7/16 in. By approx. equalization of the pressure of the lower back matrix lugs against the mold aligning groove in all three aligning positions, wear on the upper surface of the lugs is conserved at the time the matrices slide sideways during justification.

Another feature of the improved link is that the upper eyebolt of the link is pinned to the floating nut inside the link casing. Manufacturer states this arrangement maintains the upper eyebolt at its correct setting at all times.

A sponge-type lubricant is packed around the spring inside the casing to insure more efficient lubrication for longer periods.

A folder in which is illustrated and described the new U-5202 first elevator lever link, is available from Intertype Corporation upon request.

Silk Screen . . .

Its utility in the Graphic Arts — Types of work to which it is suited — Mechanization possibilities

By J. I. BIEGELEISEN*

**Production Manager, Paint Print Process, Inc., New York, N. Y.*

THE other day, a young friend of the family's, fresh out of engineering school, stopped in at my shop in midtown Manhattan to say hello and to satisfy a long-felt curiosity about the silk screen process. He had heard about it, seen a demonstration in a Graphic Arts course at college, and wanted to see for himself what a silk screen shop looked like. After he was shown the printing tables, drying racks, screens, and the other simple paraphernalia which make up the typical screen shop, he expressed his amazement that in this era of power and machines a hand craft like silk screen could survive and hope to compete commercially with high-powered letterpress, gravure, and offset processes. Here is what I told him.

Silk screen has remained by and large a manually-operated craft not because it has been found impossible to conceive a silk screen printing press, and not because those in the business take a reactionary stand against mechanization, but only because the great variety of work handled in the average shop makes standardized machines impractical. Those machines which are on the market—and there are several—are not sufficiently flexible to accommodate the heterogeneous nature of the tasks.

The Function of Silk Screen Process

The silk screen process, being a hand-operated one, takes over where other Graphic Arts are impractical for one reason or another. Here is a hypothetical case in point. A frantic call comes in from the headquarters of a political club on the Friday before election: Can 500 cloth banners measuring 3 ft. by 18 ft. be printed in two colors and rushed out over the weekend? The signs must be up by next Monday morning. Now only a silk screen printer could undertake a job like that—and on such short notice. To him, such a request is not unreasonable. He can render such service when necessary because the simple "machine" that does the printing can be made at a moment's notice to suit these or any other unusual dimensions. Even if called upon to print a sign 25 ft. long and all in one piece, it would still be feasible to build a unit quickly and economically to fit the order.

The printing unit consists of nothing more than a rectangular wooden frame upon which a piece of silk fabric is stretched, and a rubber squeegee with which to push the paint. Many large silk screen shops which receive frequent calls for jumbo-size signs and displays, have an assortment of frames and squeegees on hand from former jobs, so they can get to work without even the slight delay necessary for constructing a frame.

Could any other printer consider taking on a job like that, even if there were no tight deadline to meet? What would be the approximate cost of a hypothetical machine made of metal and run by power necessary to do that job? One need not be a mathematical genius to figure the difference in the cost of doing that banner job by silk screen or in getting a standardized machine to do it. Or imagine the plight of the printer who did get a machine like that. What is he going to do with it until another jumbo job comes along—which may not be until next election season or whenever the circus comes to town? Certainly it would be a sheer waste of money, space and power to keep an immense machine altogether idle or running puny jobs only 18 in. by 24 in. in size. That would be as practical as using a huge crane to pick up cigarette butts from the streets just because the Sanitation Department has the crane on hand and wants to keep it busy. Being able to construct a unit to suit the size of the job, the silk screen printer is free of the limitations on size which are naturally imposed by a machine.

Jobs Channeled as Varied in Type as in Size

Silk screen printers find that the jobs channeled for process reproduction are as varied in type as they are in size. As you know, the silk screen stencil can be used to apply designs or lettering on any flat surface, be it cloth, metal, glass, foil, plywood, rubber, plastic, and it is safe to say any material not yet discovered, upon which a design is to be applied. The silk screen "press" and the stencils are readily adaptable to this variety of printing surfaces with a minimum of adjustments. Preparing the makeready for a silk screen job and getting the printing started is such a simple procedure, that printing one job on glass and the next on cork or changing over from any printing surface to another requires very little time and few adjustments. Most machines, no matter how versatile, require special handling and adjusting for starting new jobs.

What is significant too is the fact that in most cases, silk screen runs are short. One thousand, two thousand, five thousand. Ten thousand is considered a large run. If an edition is for 250 thousand, or thereabouts, then even the time spent on the complicated makeready of a machine process would be more than made up for in the long run. No one but a silk screen fanatic would recommend the stencil process for the type of printing job which calls for making hundreds of thousands of copies, since silk screen is not intended to replace lithography and other fast-producing processes. It should be reserved for jobs where its advantages make it particularly appropriate.

Proper Sphere for Silk Screen Work

The most progressive silk screen experts agree that this process has a field all of its own and need not encroach upon the domain of related Graphic Arts. The proper sphere for silk screen work is where (a) the size of the job is beyond that of standard printing presses, (b) the runs are comparatively short, and (c) the surface to be printed cannot be handled by any other printing method. To expand on each of these points:

The Size of the Job

We have given a dramatic example of how large silk screen prints of almost any dimensions are turned out—far beyond the scope of existing printing presses. It should be understood too, that just as there is no maximum limit to the dimensions of the printing surface, there is also no minimum limit. With the aid of photographic stencils, fine reproductions in line or halftone are possible in reduced sizes.

EDITOR'S NOTE

MECHANICAL and production executive readers of this magazine try to keep acquainted with all of the reproduction processes used in the Graphic Arts industries. From time to time, each of these processes may shift their position with respect to their utility—partly because of technical developments and partly because of consumer acceptance.

Following its editorial policy of reporting to its readers from time to time upon progress made in the various processes allied with the Graphic Arts industries, Printing Equipment Engineer *now presents an up-to-date summary of the utility of the Silk Screen Process. The article was prepared by J. I. Biegeleisen, a well known silk screen authority. The author also tells why the process largely is hand-operated but he also tells where mechanization fits in.*

The Size of the Run

Here are some hypothetical jobs to illustrate this point. Case 1. An advertising agency is promoting a new shaving product. Before splurging on an extensive campaign with a hundred thousand lithographed posters, the agency decides to use only 250 posters sent to their key dealers to test the effectiveness of these displays. Silk screen is a natural for that order. The 250 posters can be printed in full color, and the bill which will cover the cost of stock, printing, and delivery, oftentimes will not exceed the cost of color separation plates required by the process to be used eventually for the large-scale production.

Case 2. A lithographer handling a syndicated 24-sheet poster contract has a stock design upon which individual dealer's names, trademarks, or prices, etc., are to be imprinted in small quantities: ten copies of one name, eighteen of another and perhaps only five of still another, and so on. Since the cost of silk screen stencils is so infinitely small when compared to the cost of metal plates, such jobs are handled economically and expediently by silk screen.

Case 3. Many national advertisers order posters in foreign languages for distribution abroad or for certain sectors of this country. When the quantities are small and the printer's type is not readily available, silk screen is the printing method used.

The Surface to be Printed

Because paints as well as dyes, lacquers and enamels can be used with the silk screen process, it is possible to print on almost any surface. The printing medium is in every case made compatible with the type of material upon which the printing is to be done.

For instance, you may want an opaque black printed on cellophane so that when the print is held up to the light, it will block out the light without pinholes or transparencies of any kind. Yet, where it is preferred, lampshades can be printed with transparent paint through which the light will glow with a colorful luminosity.

Or you may want to print on curtain or drape material which will take a fold nicely without stiffening the printed design. In such a case, special textile lacquer or dye can be used, which by nature of its composition becomes permanently impregnated in the fibers of the cloth. Designs and lettering may also be silk screened on book cover stock.

There is a special paint manufactured for printing designs on trays or glass coaster discs which will withstand the chemical action of alcohol.

Outdoor signs and decalcomania transfers for trucks and exteriors can be made permanent with silk screen paint that has been found well able to withstand the ravages of time and weather.

Some silk screen printers print leopard spots on dyed rabbit skins. Others have used the process to apply a fluorescent paint on signs which have to radiate a message in the dark.

Sometimes, when a lithographed job is finished, a spelling boner or some other error is discovered which means that the completed job must be relegated to the scrap heap. Silk screen can prevent this dead loss by covering the mistake with opaque process color.

Such are the varied uses of silk screen and so unlimited is its scope.

Mechanization of Process

"Is there no room for precision-built machines and standardized equipment? Aren't any machines being used?", asked my engineering friend.

Some automatic presses are in use, and there definitely is a place for mechanization in silk screen printing in the following categories:

1. All printing on cylindrical surfaces such as bottles, jars, glasses, vials, etc., is done by machine successfully. The introduction of machinery for this type of work came about because the runs are large enough to warrant specially-built

Photographic reproductions selected from a variety of specimens of work executed in the shop of Paint-Print, Inc., New York, by silk screen process. In the accompanying article Mr. Begeleisen defines the utility of the silk screen process. Other specimens consist of a powder box cover done on silk cloth; a Christmas Card; a poster; booklet cover, and a counter card. Silk screen should be considered as an allied process for the printer on certain kinds of work.

At upper left is shown a Linotype booklet cover, $12\frac{1}{4}$ in. wide by $9\frac{1}{4}$ in. high. This job was silk-screened on dark gray stock. Not counting the dark gray stock which is made to appear as a "color", and counting black and white as such, there are five colors in the design. All colors are opaque. The sky is bright blue, the gunnery crew's uniforms are khaki green, and their bodies are well tanned. The design and bold colors are suited to silk screening.

At upper right, done on black book cloth is a poster design. The magenta color was applied in one printing. Size of the cover is $9\frac{1}{2}$ in. wide by $11\frac{1}{4}$ in. high.

The colored insert for frontispiece to a book is executed in brilliant colors. The insert was used in a book entitled *The Silk Screen Printing Process*, by Mr. Biegeleisen. Red, two greens, yellow, two blues, and purple show to excellent advantage.

Perhaps the finest specimen submitted by the author of the accompanying article is the counter display easel shown at lower right. Its size is 9 in. wide by $13\frac{1}{2}$ in. high. The upper background in pale blue is graduated into the lower part of the background. The "ground" is plum color. The tree trunk and two main stems of the shrub, as well as the outside border are done in gold with embossed effect. Leaves of the tree and shrub are emerald green. The snake is in bright red — the paint having been laid on heavily enough to produce an embossed effect. The lettering is white.

presses and related equipment, and also because no other printing process besides silk screen could do the job.

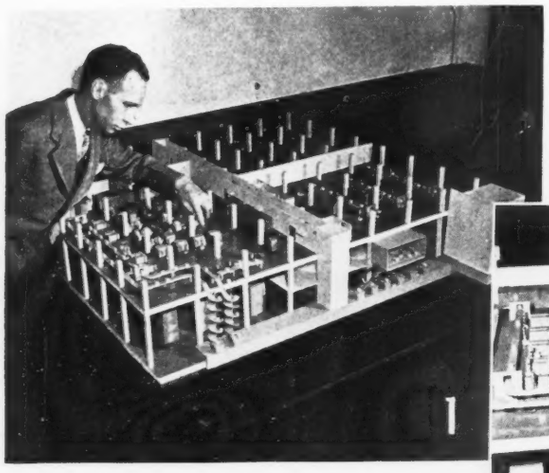
2. Concomitant with the advance made in mechanized printing on round surfaces, automatic methods of conveying, drying, and baking prints have also been developed to keep pace with accelerated production.

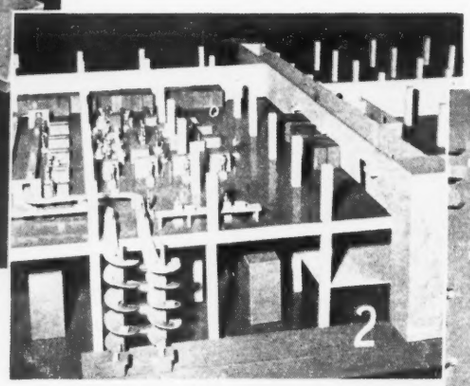
3. For flat-surface printing, there are several types of machines on the market which can accommodate jobs up to 32 in. by 42 in. in size. But strange as it may seem, the process machine is much more widely used as yet for printing on curved surfaces than on flat ones. This may be explained by the fact that the existing machines fix the maximum size below that which is acceptable to the majority of silk screen printers and also because they entail such elaborate makereadies that unless a job is exceedingly large, the results are sure to be better and faster if you do the work with a manually-operated squeegee. Judged by modern standards, the machines in use at present for screen printing are cumbersome, noisy, and not developed to optimum efficiency.

Then, too, it has been found that a fast-working expensive machine can be kept going economically only if it is busy all the time. This presupposes a certain amount of guaranteed contract work of a more or less fixed size. The fact that there are a few shops in a city as modern and speed-crazy as New York which handle steady syndicated jobs and yet do not use any of the available silk screen machines is a sign that the existing machines are not quite up to par. This should be encouraging to those with the ability to develop a machine which might be more acceptable to the trade. Engineers please take note.

Three-Dimensional Planning

for Printing Plants





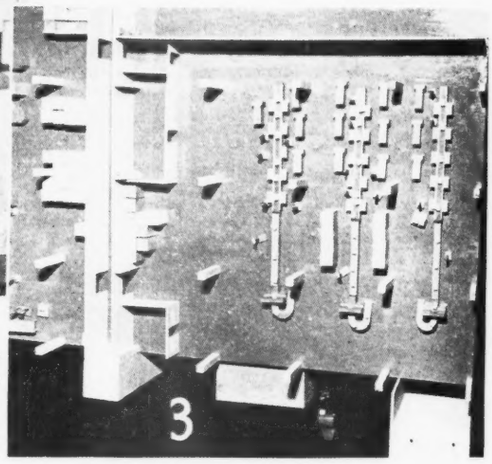


Fig. 1—Overall view of scale model of new bindery and mailing room of the Louisville, (Ky.) *Courier-Journal* and *Times* and Standard Rotogravure Corporation of Louisville. The bindery section is at the left—the mailing room on the second floor. The model was prepared by Serge A. Birn's Chief Engineer H. E. Runion and Serge A. Birn himself. Presses are on first floor. Flow of newspaper and news-section bundles can be followed easily from the press conveyor delivery points, over conveyors and chutes, to the trucks at the loading dock.

Fig. 2—This is the final revised layout of the bindery shown at left in Fig. 1. The miniature scale models have been moved about to obtain the best workflow operation. Note the scale model newspaper bundles on the flat conveyors and on the spiral chutes.

Fig. 3—Preliminary discussions by executives of the Louisville, (Ky.) *Courier-Journal* and *Times* with the Birn organization resulted in this tentative mailing room layout. The layout in this view of the right-hand section shown in Fig. 1 is not final, but it does illustrate the facility with which the miniature pieces of equipment may be "shoved around" to obtain the best workflow. There are eight press conveyors (represented by the T-shaped gray-color pieces at upper right.) The four light-colored T-shaped pieces represent future press conveyor installations. Miniature newspaper bundles rest on the flat conveyors. Note also the three wire-tying machines and the miniature model delivery truck.

RECENTLY, the three dimensional planning approach to plant layout has become popular in industries other than the newspaper industry. Serge A. Birn, Consulting Management Engineer, of Louisville, Ky., is now pioneering the application of three dimensional planning to the newspaper industry, and specifically mailrooms.

Birn has also developed a consulting service for the newspaper industry. His engineers go into all details of the engineering problems submitted to them, such as manpower requirements and distribution, selection of equipment for a given purpose, the writing of engineering specifications, the developing of new methods, design of new automatic devices, etc.

As far as three dimensional planning is concerned, scale models are made of building, every piece of equipment, even newspaper bundles and workers. The layout is then developed, using models instead of templates or drawings. This method has been previously used by newspapers only on rare occasions. Now it is being systematically developed.

S. A. BIRN
Consulting Management Engineer

H. E. RUNION
Chief Engineer of Serge A. Birn, Louisville, Ky.

An example is the mailroom layout of the Louisville, Kentucky, *Courier Journal* and *Times*, and the bindery layout of the Standard Rotogravure Corporation, of Louisville. H. E. Runion, Birn's Chief Engineer, and Serge A. Birn developed these layouts for the new building of the *Courier Journal* as shown in the accompanying illustrations.

Mr. Birn believes this approach will prove more beneficial to the newspa-

per industry than to other industries. R. W. Mallick, of Westinghouse, East Pittsburgh, during the 1944 Annual Conference of the American Society of Mechanical Engineers, said:

"Many hundreds of hours can be spent by plant engineers in devising a layout, and every feature may be mentally visualized by them, but these impressions are extremely difficult to convey to managers by the present practise of engineering drawings.

"Most executives cannot afford the time to engage in lengthy detailed explanations of layout features which they cannot immediately see when viewing the plan. Many persons who are called on to review and pass judgment on the merits of a layout, cannot easily visualize a plant represented by two dimensional layout.

"The benefits gained in time required to prepare the layouts when working with models, the arrangements that can be made and the time saved in conferences and approval can hardly be measured in monetary terms . . ."

Lisle Baker, Jr., Treasurer and Vice President of the *Courier Journal*, comments as follows on the use of independent engineering approach to mailroom and other problems:

"In the planning of the mailroom for our newspapers and the bindery for our Gravure Corporation, we felt the need of an outside approach so employed Mr. Birn and his associates to make a survey and to suggest a layout for us.

"We found particular value in the three dimensional model. There were several opinions as to the proper layout and several possibilities as to the location of the conveyors from the press folders. By use of the three-dimensional model we were able to lay out each of the possibilities quickly and appraise the effects more readily than we could have done from drawings."

Backed Up Enamel Stock Within Few Hours

FORMS consisting almost entirely of halftone cuts, present a problem when it becomes necessary to back up a form within a few hours and the stock used is enamel book paper. The Wholesaler Printing Co. of Hutchinson, Kas. recently had a school job that meant quick work. The problem was solved by C. E. Matics, pressroom foreman.

The job was printed two pages at a time on 12 1/2 in. by 19 in.—70 lb. enamel book stock. Almost the entire two pages consisted of 100 line screen halftone cuts. The job had to be out as quickly as possible. That meant that there wouldn't be time for proper drying. Mr. Matics decided to try an idea to see if it would work. It did.

He started running the first form on an automatic cylinder press at 8 o'clock in the morning. He used some extra offset varnish in the ink and kept the dryer flame as high as possible. The press speed was held to 1000 impressions an hour. As the enamel sheets came off the press, Mr. Matics slipsheeted them by hand with 50 lb. eggshell paper. At 10 o'clock the same morning this first form was off the press.

At 2 o'clock that same day, Mr. Matics began backing up this first form with another two page form, which, like the first, consisted almost entirely of halftones. Mr. Matics worked stacked the enamel sheets with the first form and the eggshell slipsheets just as they came off the press in the feeder and let the automatic feed them that way, first an enamel sheet and then an eggshell slipsheet. The slipsheets would naturally keep the enamel paper sheets from offsetting. The eggshell slipsheets took up any offset that might be deposited on the cylinder of the press. The slight offset that came off the enamel sheets onto the cylinder packing was absorbed by the eggshell slipsheet that immediately followed it.

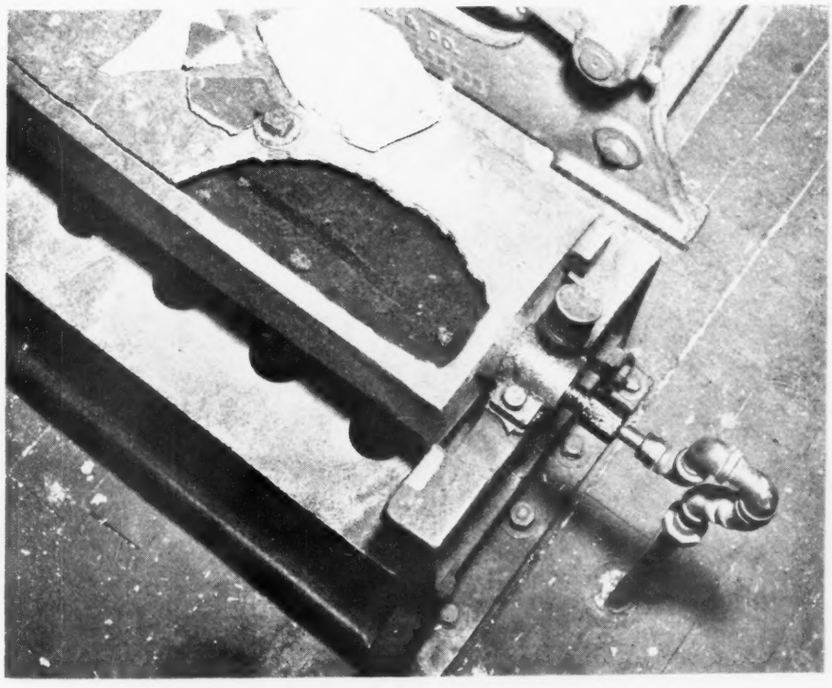
Naturally, the eggshell stock used for slipsheeting purposes was a total loss but that was the only extra cost of producing the job. In comparison to the time saved the job didn't cost any more than it would have cost if done in the usual way with plenty of drying time allowed between runs.

Book Face Brochure

An attractive 12 page brochure (8 5/8 in. by 11 3/4 in.) has been published by Lanston Monotype Machine Co. In the brochure are contained showings of specimens of nine Monotype book faces produced during the past decade. These consist of miniature reproductions of book pages, characters contained in the font together with comment about the origin of the particular type face.

Two pages contain a summary of address delivered by Frank M. Sherman before a meeting of the New England Trade Composition Plant Owners. Title of the summary is *Suggestions for Enhancing the Readability of the Printed Word.*

Steam Pressure Ruins Pig Mold



IN THIS picture is shown the damaged underside of a water-cooled line-casting machine pig mold. Donnell F. Shortell, Composing Room Superintendent of the Asbury Park (N. J.) *Press*, reports that the accident happened in his plant. Fortunately, no one was injured when steam generated in the mold built up enough pressure to blow out a good sized area of the mold jacket. Mr. Shortell reports that while the accident is unusual, it would be a good idea to see that all water outlets are clear, perhaps even to the extent of installing a safety valve. In some localities where lime deposits accumulate in the water circuits it might be necessary to drill them out occasionally, or in other cases to use a scale cleaning compound.

Electric Tool Catalog

Catalog No. 464 has been published by Syntron Company. The catalog consists of 44 pages, 4 1/2 in. by 7 in. Each item is illustrated. The types of equipment described are widely used in plant maintenance and in plant production. In the catalog are described the complete line of Syntron electric tool equipment.

I UNDERSTAND THE BOSS IS GOING TO THE 27TH ANNUAL CRAFTSMEN'S CONVENTION IN MONTREAL – HE SHOULD PICK UP A LOT OF IDEAS ABOUT NEW MACHINERY AND TYPE.
I DON'T KNOW ABOUT THE MACHINERY – BUT THERE SURE IS A FINE SELECTION OF TYPES UP THERE – I KNEW A FRENCH GIRL ONCE – – –
GORDON MOORE

27th Annual Craftsmen's Convention, Montreal, Sept. 8-11

BOOKS

RECEIVED

Experiences of Mr. Hopewell

FOR printers and others who are interested in establishing an offset-lith business, the National Association of Photo-Lithographers has published as part of its public relations program a booklet. In the booklet is presented factual information which should be in the possession of the man who is not familiar with the problems which will be encountered.

The booklet is written in question-and-answer form. Information given is related to expected business volume, types of work to be produced, lithography and letterpress, manpower available, wages, training facilities, equipment and equipment costs, types of lithographic plants, investment and working capital needed, and probable chances of success or failure.

The Experiences of Mr. Hopewell is based on a series of country-wide addresses given by Walter E. Soderstrom, executive secretary of the National Association of Photo-Lithographers. The purpose of the text contained within the booklet is to attempt to make certain that those Mr. Hopewells who do enter the industry do so with full knowledge so that the lithographic industry will not suffer from poor management, price cutting and an overall cheapening of the process, which often follows when newcomers invade an industry.

A copy of the booklet may be obtained gratis from the National Association of Photo-Lithographers, 1776 Broadway, New York 19, New York.

Recapitalization Plan is Approved

Vitually unanimous approval was voted by stockholders of Wood Newspaper Machinery Corporation, Plainfield, N. J., to the management's plan for recapitalization of the company, at a special meeting held May 8, 1946. Over 90% of each of the three existing classes of stock were represented, and approved the program for simplifying and modernizing the corporate structure, according to President Oscar C. Roesen.

Under the new capital set-up, three previous classes of securities (prior preference, preferred, and common) are replaced by 36,906 shares of 5% cumulative convertible preferred, and 83,998 common shares. The new preferred is callable at par and accrued dividends at the company's option, subject to the provision that it may at any time be converted into two shares of new common. These provisions look toward the flexibility and soundness of an eventual "all-common" stock capital structure. At the same time, various development investments, good will, patents, etc., previously carried at $1,641,585, have been written down to $1. All dividend arrears have been wiped out.

Current unfilled orders on the Wood Company's books, for newspaper presses, Autoplate equipment, and other newly announced products, total over $4,500,000. Reconversion from war assignments has been fully completed.

Book Plate Contest Winners

The Los Angeles Club of Printing House Craftsmen has announced the winners of the contest for a book plate design which was held in connection with the book auction held by the Club on June 19. First prize was won by Richard Hoffman of the Los Angeles City College Press and second place went to Paul L. Berger of Cole-Holmquist Press.

The judges who selected the winners from the entries were: Merle Armitage, Ward Ritchie and Amadeo Thomassini.

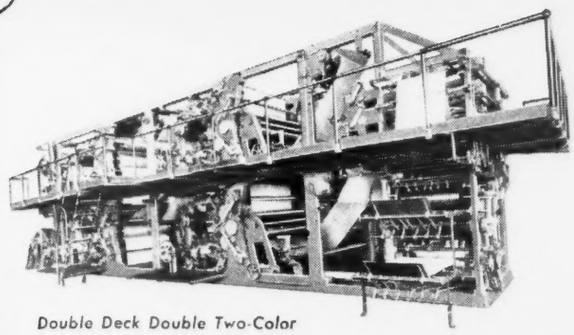
Dr. Rufus B. von Kleinsmid, president and recently appointed life chancellor of the University of Southern California, will give a brief address before the Club at a banquet preceding the auction.

More than 100 books were contributed to the auction from friends of the Craftsmen's Clubs all over the country. All proceeds from the auction will be used to further the library project sponsored by the Los Angeles Club in conjunction with the Los Angeles Public Library.

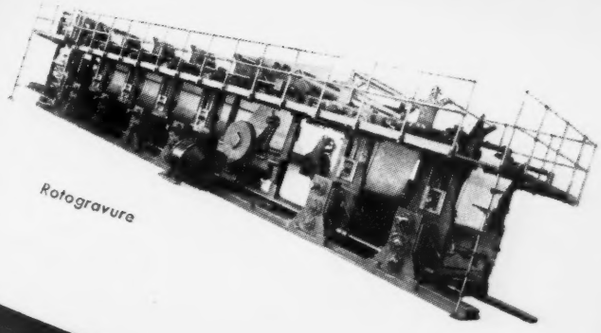
C & P Installs Cutter

The first Chandler & Price power paper cutter to be shipped into New York, N. Y., since the war, has been installed in the Hotel New Yorker print shop. In addition to this machine this plant operates a Linotype, Miehle Vertical and three hand-operated presses comprise.

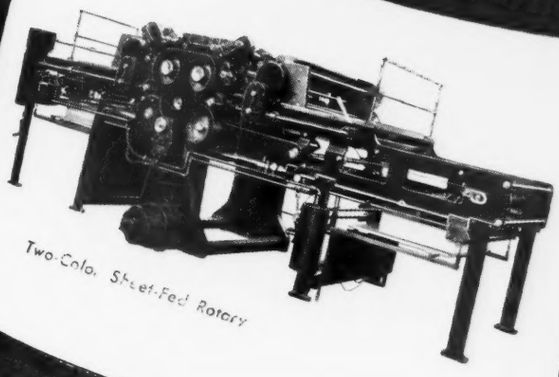
The hotel's staff of printers, under the direction of Superintendent Gerald P. Mansfield, turns out a variety of work. Daily, in addition to eleven du jour menus for the hotel, there are three for the New Yorker operated restaurants at LaGuardia Airport. Other work produced from time to time include beverage lists, "auxiliary" menus, the monthly *Staff News* and advertising material to promote the Ice Show, laundry, valet and other services—as well as numerous forms.



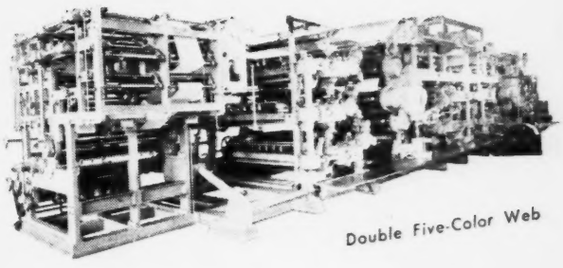
Double Deck Double Two-Color



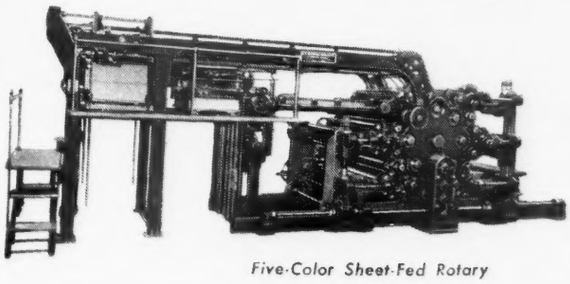
Rotogravure



Two-Color Sheet-Fed Rotary



Double Five-Color Web



Five-Color Sheet-Fed Rotary

Gallery Of Printing Presses

Adaptability . . . economy . . . perfection . . . place Cottrell press-artistry first in any gallery of printing equipment.

The printer or publisher has but to name the letterpress or rotogravure problem, and he will find the answer in one or in a combination of the Cottrell masterpieces displayed here.

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Cottrell

OVER 91 YEARS OF GROWING WITH THE PRINTING INDUSTRY

Alex. G. Highton Talks on Photographic Type-Setting

At the meeting of the New Jersey Typesetters Association, held in Newark at the Robert Treat Hotel on Tuesday evening, May 14, Alex. G. Highton, president of Alex. G. Highton, Inc., of Newark, discussed photographic typesetting for use in the letterpress, photo-offset, photo-gelatine, and gravure printing processes.

According to the speaker, methods for composing type characters photographically are arousing interest in the Graphic Arts industries. Its adoption would have a far-reaching effect on several important branches of those fields because of elimination of the excessive weight of metal type, with its problems of transportation and storage, and because a number of operations now required in its casting and handling would be dispensed with.

Mr. Highton has spent most of his life in the printing and publishing business and is an authority on typesetting and typographic design. He is the inventor of a method for setting type photographically which is intended for use in newspaper, magazine, and book printing. With his method, which is covered by United States Patent No. 2,351,126, the master type characters are mounted on the rim of a wheel. One character is photographed with each revolution, while the wheel is revolving at high speed.

Represent Kemp in Chicago Area

On May 1 the new firm, Genn & Logan, 3959 N. Lincoln Ave., Chicago 13, Ill., was formed to represent The C. M. Kemp Mfg. Co. of Baltimore, Md., manufacturer of industrial equipment and machinery for process heating, metal melting and industrial combustion. The territory embraces northern Indiana and Illinois, southwestern Michigan, and southern Wisconsin, as well as Iowa, Minnesota, North Dakota, and South Dakota.

ITCA Convention

The International Trade Composition Association will hold its 27th annual convention at Atlantic City, N. J., on Thursday, Friday and Saturday, September 19, 20, 21, 1946, with the Philadelphia Typesetting Association as hosts, according to an announcement by ITCA President Lester A. Neumann. A local committee, Arthur J. Meyer, chairman, is already hard at work on preparations. J. Stanley Best is president of the Philadelphia typesetting group.

Fred W. Clayton, director of purchases for Sun Chemical Corp., announces the appointment of W. A. Keating as assistant purchasing agent, who will supervise the buying of colors and pigments (dry and flushed), carbon black, driers, lamp blacks, bronze, shipping materials and supplies. For a number of years Mr. Keating was superintendent of the East Rutherford plant of the Fuchs & Lang Div. of Sun Chemical corp. Arthur F. Hermann, recently appointed assistant purchasing agent for Sun Chemical Corp., will supervise the buying of chemicals, corn products, vegetable oils, petroleum oils and products, solvents and varnishes.

Hoe Purchases Tools

R. Hoe & Co., Inc., printing press manufacturer, as part of its plant improvement program, has purchased at "a substantial discount" and installed a large number of new and previously government-owned machine tools, Joseph L. Auer, President, announced in a letter to stockholders.

"To have purchased all of these tools new," Mr. Auer stated, "would have involved an expenditure of approximately $1,000,000 and their acquisition will not only make for more efficient operation, but will also eliminate bottlenecks in our production sequences, thus permitting greater output and accelerating deliveries.

"All through the war period we devoted such engineering time as could properly be spared from actual war work to the improvement of our products functionally and from the standpoint of economical manufacture."

Plan 1946 Conference — The Board of Directors of the Great Lakes Newspaper Mechanical Conference, and a number of newspaper mechanical executives met at Hotel Leland, Richmond, Ind., on Sunday, May 19. The purpose of the meeting was to plan the 1946 conference which will be held in Indianapolis on October 27, 28 and 29.

Those attending the meeting and shown in the above picture are as follows: (Front row, left to right) Frank Duncan, Conference Director and Mechanical Supt., Portsmouth (O.) *Times;* William Williams, Conference Director and Mechanical Supt., Indianapolis *News;* Roy English, Conference Vice President and Photo-engraving Supt., Detroit *News;* George Fuller, Conference President and Stereotype Supt., Cleveland *Press;* Al P. Oberg, Conference Secretary-Treasurer and Composing Room Supt., Flint (Mich.) *Journal;* Frank Salmon, Conference Director and Mechanical Supt., Grand Rapids (Mich.) *Herald;* Horace Parker, Conference Director, Host Chairman, and Press-Stereo Supt., Richmond (Ind.) *Palladium-Item;* William Lacker, Stereotype Supt., Indianapolis *News.*

Second Row, left to right: J. L. Donaldson, Photo-engraving Supt., Indianapolis *Times;* Charles Kirk, Stereotype Supt., Detroit *News;* Levi White, Conference Director and Stereotype Foreman, Port Huron (Mich.) *Times-Herald;* F. L. Yeager, Conference Program Chairman and Production Manager, Indianapolis *Star;* Richard Coffey, Composing Room Foreman, Richmond *Palladium-Item;* Chester Benson, Photo-engraving Foreman, Richmond *Palladium-Item;* Art Barrows, Stereotype Supt., Indianapolis *Times.*

Third Row, left to right: MacD. Sinclair, Editor, *Printing Equipment Engineer,* Cleveland; Wilford Coddington, Composing Room Superintendent, Youngstown (O.) *Vindicator.*

three ems!

MEN
METHODS
MACHINES

Men
Methods
Machines—TOGETHER, they make the triad that spells America. Together they must stay, lest one's absence spell the others' failure.

Since some sixty years ago, when the first Linotype ushered in the dawn of a new day for printers who toiled unceasingly with their hands, each improved Linotype model has raised men's standards and broadened their capacities for service and usefulness.

And it was inevitable that advanced methods of operation and production would follow. Together, these have brought about the development of better and bigger Linotypes. Today and tomorrow, in machine composition, they are the *Blue Streak Linotypes* that so ably assist men and methods in the tasks that lie ahead.

Discuss your typesetting problems with the man who knows—your Linotype Production Engineer.

LINOTYPE · BROOKLYN 5 TRADE LINOTYPE MARK *N. Y.*

Linotype Caslon Old Face Series

EXECUTIVE ¶s

A. E. Giegengack, Public Printer, has announced the resignation of Charles A. Ruebsam, chief of the special service section in the Government Printing Office's Planning Division. Mr. Ruebsam is joining Robert A. Ritter's firm, which offers management counsel on printing production and organization. The Ritter organization has offices at 103 Park Ave., New York, N. Y. Mr. Ruebsam and Mr. Ritter, the Public Printer's former Production Planning Assistant, were closely associated in the Government Printing Office's tremendous war printing and procurement program. Mr. Ruebsam reported to his new job on March 1. The Public Printer stated that the release was granted reluctantly. He felt that to deny it would be a poor reward for Mr. Ruebsam's outstanding service to the Government.

Sun Chemical Corp. announces that at the annual stockholders meeting held on April 3, 1946, Sherwood M. Bonney was elected secretary and appointed assistant treasurer of the corporation. William F. Talbot, who was formerly secretary of Sun Chemical Corp., is now technical director for the corporation and president of its fine chemical division. For two and one-half years during the war Mr. Bonney was a lieutenant in the U. S. Naval Reserve. He received his LL.B. from Harvard Law School in 1937.

Correction—In the May issue of *Printing Equipment Engineer* the name of Gerry D. Gerrard was misspelled, we having printed it "Herrard." Announcement was made in the May issue that Mr. Gerrard has joined the Process Color Plate Co., 522 So. Clinton St., Chicago 7, Ill.

Clarence Brestel has been made purchasing agent of The Printing Machinery Co. of Cincinnati. His promotion follows a series of advancements since he entered the employ of the company in 1929 as a clerical worker. Mr. Brestel will continue to handle his past responsibilities in connection with the PMC flinker fountain divider.

J. W. Valiant, vice president and eastern district manager for Harris-Seybold has announced a program of reorganization and expansion in the eastern district. Newly appointed branch managers are S. E. Arnett, New York metropolitan area; J. C. Doty, New England area; and R. H. Randall, Philadelphia area. Mr. Arnett, a veteran of approximately 18 years experience in the Graphic Arts, has been a New York City representative of Harris-Seybold for the past six years. During the war he served as an aviation engineering officer with the United States Marine Corps. His headquarters are at 75 Varick St., New York, N. Y. Mr. Doty, branch manager of the New England area, joined Harris-Seybold last July, following more than 20 years experience in the Graphic Arts and paper industry. Formerly he was manager of Aetna

S. E. Arnett appointed branch manager of New York Metropolitan area for Harris-Seybold Company.

Harris-Seybold Company's New England branch manager, J. C. Doty.

Philadelphia branch manager of Harris-Seybold Company, R. H. Randall.

Mill of the Howard Allied Paper Mills and Sales Engineer for the Simonds Worden White Co. His offices are in the Rice Bldg., 10 High St., Boston, Mass. Mr. Randall, branch manager of the Philadelphia area of the eastern district, has served as instructor, service manager, salesman, division manager, and operating manager of lithoplants during his 20 years in the lithographic industry. He has been with Harris-Seybold for 12 years, excepting time spent in military service as a Major in charge of Air Technical Service Command Printing Plant Headquarters at Dayton. The Philadelphia office is in the Morris Bldg., 1421 Chestnut St.

Honorary membership in the Cincinnati Junior Chamber of Commerce was conferred upon Lee Augustine, vice president of The Printing Machinery Company of Cincinnati, at the organization's annual Bosses Banquet May 28. This was in further recognition of years of service devoted to the organization by Mr. Augustine while an active member, from 1924 to 1941. He served the Cincinnati Junior Chamber two terms as secretary and three terms

Honorary membership in Junior Chamber of Commerce conferred on Lee Augustine.

as president and was co-founder and first secretary of the Ohio State Junior Chamber of Commerce. In 1935 he was presented the Distinguished Service Award for outstanding civic work for a young man under 35. The Junior Chamber of Commerce is an organization of young business and professional men between the ages of 21 and 36. Its activities are built around civic service. Honorary memberships are conferred only in recognition of outstanding service to the organization. Mr. Augustine is a member of the Cincinnati Club of Printing House Craftsmen.

Raymond H. Lecraw, former Director of Commercial Planning in the Government Printing Office, has been made consultant on methods and procedures. A. E. Giegengack, Public Printer, has announced the creation of the new position. Daniel H. Campbell was promoted to assistant director of purchases. The Public Printer's administrative order establishing the consultant's position states that the action was taken to further the study of present procedures and methods with a view to installing improvements.

James Kelleher, Composing Room Superintendent, the Cleveland *Press*, has appointed Fred J. Hawver as chief composing room machinist to succeed Albert Krueger who resigned early in April. In making the appointment, Mr. Kelleher stated: "In selecting Mr. Hawver for the job, I am glad to be able to promote someone from within our own organization." Previously, Mr. Hawver has worked at the *Plain Dealer* and the Prompt Printing & Pub. Co. in Cleveland.

You'll get better quality printing, better service with a roller built specifically for your own newspaper presses. That's why it will pay you to try Daycos. They're built to just the exact degree of softness that you want . . . and built to perform just the way you want them to. They require fewer adjustments when your presses start to roll . . . and less regrinding.

Top printing quality performance and long trouble-free service life are built into every Dayco Roller by craftsmen who, since 1919, have built hundreds of thousands of natural and synthetic rubber printing rollers. This experience assures you that Daycos will give you the kind of roller service you demand . . . the kind of roller service that is now being enjoyed by hundreds of newspaper plants from small weeklies and dailies to the world's largest newspaper. Let Daycos prove themselves on your own presses. Write for complete information today.

THE DAYTON RUBBER MANUFACTURING COMPANY
DAYTON 1, OHIO

Latin American Representative: National Paper and Type Company, 120 Wall Street, New York, N. Y. *Canadian Representative:* Manton Brothers Ltd., Toronto-Winnipeg-Montreal-Vancouver

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

William J. Knoll, president of H. B. Rouse & Co., Chicago, died on March 26 after a long illness. He was

William J. Knoll, President of H. B. Rouse & Co., dies.

born March 18, 1874 in Chicago. After completing his general education and the study of music, he studied tool-and-die-making. His early training in mechanical development work was financed by booking and directing his own small orchestra of 10 musicians. He developed his music to a considerable extent and was a very fine violinist. After an accident which brought his musical career to an end, he concentrated on developing his mechanical ability. He worked for the Inland Mfg. Co. in 1900. Here he met Mr. Rouse, who was having some printing equipment manufactured in the Inland plant. After a short acquaintanceship, they decided to go into business. In 1903 they formed the partnership of Rouse and Knoll in a small plant on Huron St., Chicago. In 1904 they started to build a part of the present plant, and got Walter A. Sittig, secretary and general manager of the company, to join the partnership. The corporation, H. B. Rouse and Co., was formed in 1906; and the company started the development and manufacture of the Rouse line of printers' tools. Mr. Knoll became vice-president, and remained in that capacity until 1936, when, upon the death of Mr. Rouse, he became president of the company. He had a wide acquaintanceship throughout the printing industry. His chief interests, outside of business, were traveling and music, in both of which he found rich enjoyment in his later years. He was a thirty-second-degree Mason. He is survived by a son, Harry W. Knoll, who at present is vice-president of the company.

Charles D. Darwin, formerly associated with the Tennessee Eastman Corp., Oak Ridge, Tenn., has been appointed to the staff of Battelle Institute, Columbus, O., where he will be engaged in graphic arts research. Mr. Darwin is a chemical engineering graduate of Virginia Polytechnic Institute and is affiliated with the American Chemical Society; American Institute of Chemical Engineers; Tau Beta Pi, engineering honorary society; and Phi Lambda Upsilon, chemical honorary society.

Fred W. Danner, founder of three concerns related to the Graphic Arts Industry, Akron, Ohio, has won the

Fred W. Danner, well known to ITCA and Adv. Typographers of America members and other Graphic Arts groups will run for Congress from 14th Ohio district.

Republican nomination for Congress in the 14th Ohio district at the May primary election. This district sustains a population of approx. 530,000 people. The three companies founded by Mr. Danner are the Danner Press, Inc., Akron Typesetting Co. and National Rotary Printers. The firms employ 150 people. Danner is a member of the Ohio Small Business Commission. He is active in civic and fraternal groups and is a member of the Akron Board of Education.

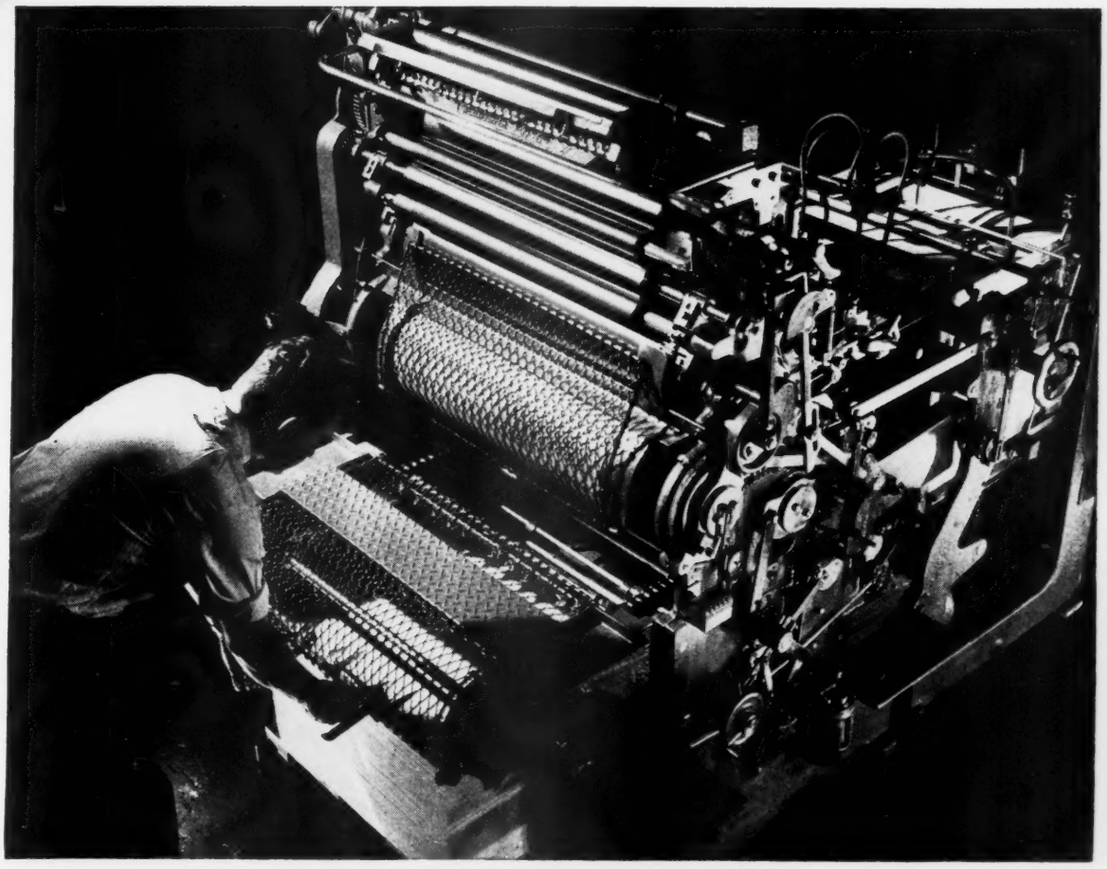
The appointment of Edward Colin Dawson as public relations manager for the Ever Ready Label Corp., 141-155 E. 25th St., New York, N. Y., was announced recently by Herbert Kaufman, director of sales and advertising. Mr. Damson served overseas with the RCAF., and the RAF., transferring in May, 1941 to the American Third Army.

Arthur Bentley, president of the Miehle Printing Press and Manufacturing Co. for the past twenty-four years died in Chicago recently. Born in Manchester, England, Mr. Bentley came to the United States in 1902. From 1905 to 1910 he was comptroller of the American Steel Foundries. He became associated with the Miehle Company as first vice president in 1910, serving in that office until 1924 when he was elected president of the company. Under Mr. Bentley's direction, the Miehle Company achieved prominence in the printing press industry. John E. Eddy was elected to succeed Mr. Bentley. Phelps Kelley, elected executive vice president, was appointed vice president in 1942. Mr. Eddy attended Shattuck School at Fairbault, Minn., and Princeton University. In 1919 he took his first position which was with the Miehle Company at Chicago. Mr. Eddy was elected vice president in 1932 and served in that position until 1943 when he was elected first vice president.

Billy Wells, Retires from Camden (N.J.) Courier-Post After 53 Years of Service—Billy Wells, foreman of the composing room, retired on April 30 to become foreman emeritus after serving 53 years. He was presented with a radio from his fellow workers, flowers and a plaque signed by his associates. Front row, left to right, are shown: Editor Frank H. Ryan, Billy Wells, and Walter L. Tushingham, vice president. Directly in the rear, left to right, are Thomas Goorley, David Stern 3rd, publisher; Elmer Pratt, assistant to the president, in charge of building construction, and Neil Dyer, mechanical superintendent. This picture was taken during the ceremonies in the *Courier-Post* composing room on April 30. Publisher Stern presented the plaque; Chairman Harry Smith of the Courier Typographical Union Chapel presented the radio, and Thos. N. Goorley of the *Courier-Post* Square club, presented the bouquet.

Lovell Goodwin is succeeding Billy Wells as active foreman of the *Courier* composing room.

ATF CHIEFS "Roll it out"



THE ATF CHIEFS are designed primarily to handle the widest variety of jobs with the least lost time . . . to ease and speed the pressmen's work and to "keep on rolling along." In short, a profitable press to own and operate. ATF Chiefs are made in three useful sizes: 14 x 20, 17 x 22, and 22 x 29.

Ask your ATF Salesman, or write for commercial samples of actual runs that show what the Chiefs can do for you.

OFFSET . . . *complete from darkroom to pressroom*

ATF Precision Cameras and plate-making equipment are modern and efficient, too.

ATF

AMERICAN TYPE FOUNDERS

200 Elmora Avenue, Elizabeth B, New Jersey

The chemical division of the Harris-Seybold Co. has undertaken an expanded program of research, production, and sales, according to A. S. Hol-

Walter Burke joins Harris Seybold Co. as production manager of chemical manufacturing.

ford, manager of chemical sales. The program of expansion involves the addition of technical personnel, procurement of new manufacturing and laboratory equipment, and intensified chemical research in the Harris Laboratories. Production of Harris litho chemicals will be under the direction of Walter Burke, recently named production manager of chemical manufacturing, and research will continue under W. H. Wood, director of chemical research for Harris-Seybold. Mr. Burke, released from active duty with the United States Navy in April, formerly served as production manager, research and development engineer, and metallurgist for various manufacturing firms in northern Ohio. A graduate of Ohio State University, Mr. Burke holds chemical and engineering degrees.

Donald Peller, recently released from the Army after three years of

Donald Peller represents E. P. Lawson Co. in New York.

active duty, has joined E. P. Lawson Co., Inc., manufacturers of paper cutters and bindery equipment, 426 W. 33rd St., New York, N. Y., as a sales representative. Mr. Peller is a graduate of Tilden and studied engineering at Brooklyn Tech. Mr. Peller will represent Lawson in the New York area and on the east coast.

Alden T. Mann, jr., Vice President in Charge of Sales of Intertype Corporation, announces the appointment of R. Randolph Karch as director of typography, advertising manager and manager of its printing department. He will succeed B. W. Radcliffe who has held those offices for the past 21 years. Mr. Radcliffe has been retired from his more active duties and will now devote his time to editing *Who's Who in the Composing Room*. Mr. Karch, who was recently separated from the United

R. Randolph Karch succeeds B. W. Radcliffe as Director of Typography and Advertising Manager of Intertype.

States Naval Reserve as a lieutenant commander, was formerly principal, High School of Graphic Arts and Printing of Cincinnati; technical supervisor of the department of publishing and printing of the Rochester Institute of Technology, and for two years chairman of the research commission of the International Association of Printing House Craftsmen. Well known for his writings in the Graphic Arts prior to the war.

Announcement has been made by the Pope & Gray, Inc., New York printing ink manufacturers, that Thomas A. Lenci became associated with that company recently. Mr. Lenci will serve the company as vice president.

Special Shelving for Paper Aids Printing Efficiency

PRINTERS frequently open a carton of paper to get out a ream or a ream to get out a part of a ream, only later to find that a carton or a ream was already open. The result is that frequently paper stock is lost.

The Rocky Mountain Bank Note Co. of Pueblo, Colo., uses a special shelving for paper, cardboard and cover stock suggested by S. C. Scribner, connected with the firm. This special shelving prevents such happenings and always shows just what stock is available.

The lower section of the specially designed shelving is built to hold cartons of the particular stock that is put in it. The section just above this lower section is made to hold reams of the same stock. The third and last section of the shelving, directly above the other is for broken reams of the same stock.

Whenever a carton of paper, cardboard or cover stock is opened, the packaged reams are put in the section just above the section designed for the cartons. And when a ream is broken for the removal of a part of it, the rest of the broken ream is put in the section of the shelving just above this. Thus if only a few sheets are needed it is an easy matter to look in the top section and see if there is enough. If so there is no need to break another ream. In case a ream is wanted, it is equally easy to look in the second section and see if there is a ream package there. If so, it then becomes unnecessary to break a carton to obtain the needed ream.

It is reported that this specially designed shelving prevents a great deal of paper stock waste.

The Single Color *Offset Press*

By I. H. SAYRE

Price $6 per copy

Because of the small handling margin please enclose cash with order

Printing Equipment Engineer 1276 West Third St. Cleveland 13, Ohio.

THE PURPOSE of this book is to offer a detailed technical explanation of the operation of the small single color offset printing press. It also carries recommendations for approved methods of printing technique and press care which apply to all offset printing. Much of the technical operating information applies to all makes of small offset presses. Should be in the library of all executives interested in offset printing.

Section I deals with Harris offset presses.

Section II deals exhaustively with materials used in offset printing.

Section III deals with ATF's Webendorfer single-color offset presses.

Generously illustrated with 99 figures in line and halftone; 284 pages; size, 6 in. by 9¼ in.; bound in blue cloth, cream stamped lettering.

Patents

For The Graphic Arts Field

The patents reported here are those issued on April 16, April 23, April 30, May 7.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issuing each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 10c for each separate patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforating:

No new patents for this classification have been issued in the four weeks covered by this report.

Composing Room Equipment:

2,399,252. MATRIX ASSEMBLER LEVER MECHANISM is in the form of an attachment for Linotype, Linograph, and Intertype machines. It pushes the last matrix assembled in a line of matrices inside of the assembling elevator gate pawls preparatory to their transfer to the delivery channel and is said to prevent the jamming of matrices about the elevator gate pawls. A matrix push bar extends through an apertured support mounted on the machine. A lever is pivotally mounted on the machine, and supports one end of bar. Vertical movement of the elevator effects partial rotation of the lever to reciprocate the bar and push the last matrix to be assembled within the elevator. This is accomplished by a second lever pivotally mounted on the machine and coupled with the first lever, and a rod fixed to elevator having a sliding connection with the second lever. Invented by John William Powers, Burlington, Vermont. Assigned to Free Press Association, Burlington, Vermont. Application September 16, 1944. 8 claims.

2,399,610. PRINTER'S LINE-UP TABLE of the type used in the printing trade for facilitating accuracy in the line-up of work and register of copy, as well as for marking or lining the work, scoring negatives, etc. It comprises a straight edge mounted on a carriage with a geared shaft movable on racks over a transparent table top in the usual manner. The straight edge has a plane work engaging face parallel to the table top. An object of the invention is to provide a straight edge which may be quickly adjusted with a high degree of accuracy to any one of a series of different planes parallel to and above the table top, as well as angularly to the table. For this purrpose a counter-shaft is mounted above the carriage and carries a pinion meshing with a gear on the shaft. A knob on the shaft provides a convenient means for turning it. Rotation of the gear at a very slow rate produces a correspondingly gradual adjustment of the carriage along the racks. A graduated vernier disk is mounted on the shaft for precision adjustment. Invented by James West, Newton, Massachusetts, and William M. Davis, Cambridge, Massachusetts. Assigned to Craftsman Line-up Table Corporation, Waltham, Massachusetts. Application May 22, 1942. 5 claims.

2,399,999. TYPOGRAPHICAL COMPOSING MACHINE with an improved power operated mechanism which may be instantly conditioned to effect individual adjustments of a matrix receiving throat section and matrix escape device. The invention is designed to overcome rebound, displacement, transposition, or clogging of matrices as they are assembled in line. The mechanism includes a pair of actuators carried by a constantly reciprocating slide and adapted, by the operation of a finger key, to swing the throat section during either stroke of the slide to one or the other of its different positions. A positive automatic lock secures the throat section against accidental displacement in its adjusted positions. Invented by Frank C. Frolander, Elizabeth, New Jersey. Assigned to Mergenthaler Linotype Company, Brooklyn, New York. Application January 11, 1943. 27 claims.

DESIGN 144,536. ORNAMENTAL DESIGN FOR A FONT OF NUMERALS in which all of the lines are of the same width as though formed with a drawing pen. (Note designee, below.) The different portions of most of the numerals are composed of separate lines that do not quite connect with each other, stencil-fashion, although presumably this effect is created primarily for style or legibility. Invented by Lucian Bernhard, New York, N. Y. Assigned to Keuffel & Esser Company, Hoboken, New Jersey. Application April 26, 1945. Term of 14 years.

DESIGN 144,548. ORNAMENTAL DESIGN FOR A FONT OF TYPE including both upper and lower case, as well as numerals. The type is different particularly in that each character has rather heavy serifs that are cut off obliquely instead of squarely. The characters with curved lines such as C, D, G, O, P, Q, etc., also have distinctive tapering of lines at one or more portions of the curves. Invented by Otto Gerstl, Chicago, Illinois. Unassigned. Application July 16, 1945. Term of 14 years.

DESIGNS 144,580; 144,581. ORNAMENTAL DESIGNS FOR TWO FONTS OF CAPITAL LETTERS probably intended more especially for initials, even for embroidery or for decoration of buckles and the like. The letters in both fonts of type are condensed, i.e., are relatively tall and narrow. In the first design patent, the tops and bottoms of the letters are portions of convex arcs, whereas in the second design patent, the tops and bottoms of the letters are pointed or gable-shaped. Invented by Melville B.

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You can order these metals from leading engravers' metal and supply houses.

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Rapp, Miami Beach, Florida. Unassigned. Application for both patents, October 19, 1945. Terms of 14 years, each.

Feeding, Folding and Delivery:

2,398,777. STACKING APPARATUS in the form of a paper jogger with a horizontally disposed table, resiliently supported for vibration, which will produce stacks of paper or cards with the edges in alignment. A vibratory motor has an armature and a field supported in operative spaced relation to provide a magnetic coupling therebetween. The vibratory motor is mounted to the underside of the table. Field is energized to cause rapid relative movement between the armature and the field without contacting one another so as to silently vibrate the table in a rectilinear path normal to the table. Invented by William F. Burke, Athens, Ohio. Assigned to Syntron Company, Homer City, Pennsylvania. Application May 2, 1942. 6 claims.

2,399,445. ELECTRICALLY OPERATED WEB BREAKER AND DEFLECTOR that is operated the moment a choke occurs at any predetermined point in a folder. A web breaking element forming part of the web breaker and folder is operated by the energizing of an electromagnet. The throwing of the control switch closes the electric circuit through the electromagnet serving also to open the electric circuit through the press drive motor. In one embodiment the web breaker and deflector is shown as operated by a choke either at the coacting rotary cutters or at either one of the two deliveries. Invented by Joseph E. Meyer, Westerly, Rhode Island. Assigned to C. B. Cottrell & Sons Company, Westerly, Rhode Island. Application December 18, 1943. 3 claims.

Miscellaneous:

2,399,857. PRESS for maintaining photographs (such as might be used in paste-ups) and the like in a flat superposed or stacked relation to prevent wrinkling and curling of the sheets. Upper and lower clamping plates have a pair of slots adjacent each of their opposite ends. A U-shaped, toothed rack bar rises from each of the opposite ends of the lower clamping plate with each leg of the rack bar slidably positioned in one of the slots of the upper clamping plate. Pairs of hinged strips, serving as pawls for the rack bars, are secured to the upper clamping plate adjacent one leg of a rack bar. The hinged strips each include a spring biased hinge plate having its free edge adapted for engagement with the teeth of an adjacent leg of rack bar so as to hold the upper clamping plate tightly down on the sheets being pressed. Invented by John T. Connors, Joliet, Illinois. Unassigned. Application December 4, 1944. 1 claim.

Plate Making:

2,399,208. PLANOGRAPHIC PRINTING PLATES, capable of long runs, in which the grease-resistant areas comprise a hydrophilic resin. Water-sensitive film-forming materials are not used in the preparation of the plates under this invention, thereby avoiding the necessity of fillers or hardening treatment required in the present practice where polyvinyl alcohols are used. The grease-resistant, water-receptive, non-printing areas comprise an essentially completely hydrolyzed ethylene/vinyl acetate copolymer, containing after hydrolysis from about 3% to 30% by weight of ethylene. These hydrolyzed ethylene/vinyl acetate copolymers, after treatment with a water-soluble light-sensitive biehromate, exposure to light, and development, can also be satisfactorily employed in the grease receptive printing areas of the lithographic plate. The plates of this process have a high wet tensile strength which eliminates the tendency to swell and break away from the back support when contacted with water. Invented by Cole Coolidge, Wilmington, Delaware. Assigned to E. I. du Pont de Nemours & Company, Wilmington, Delaware. Application April 13, 1944. 6 claims.

2,399,534. ETCHING DEVICE FOR ROTOGRAVURE CYLINDERS, the device insuring uniform applications of mordant to the cylinders and thus conserving the solution. A stand supports the cylinder horizontally so that the cylinder may be revolved about its axis in an etching trough. The bottom of the trough, by being in close proximity to the lower part of the cylinder, forces the mordant to assume a higher level on the side of the cylinder towards which the cylinder is being revolved, causing the mordant to surge against the cylinder. The trough may then be swung about an axis, in line with the axis of the cylinder and the mordant quickly drained off. This will allow for immediate use of the next solution when, according to usual practice, several solutions of different concentrations are used. Invented by Harley C. Alger, Chicago, Illinois. Unassigned. Application January 29, 1943. 9 claims.

2,399,975. PHOTOGRAPHIC PRINT REGISTRATION PROCESS which insures a minimum of noticeable lack of registry in a finally produced print even though the separate elements assembled to produce the print have expanded, shrunk, or otherwise changed dimensions. By this invention the central, and normally most important portion of the picture area of a photographic element, remains little changed while any lack of registry takes place at the side edges and corners of the picture. The method consists of providing a sheet with generally rectangular openings in three of the margins, the openings being spaced directly outward from the center of the portion to be registered. A registry frame is provided having pins to fit into the openings of such size and shape as to permit movement of the adjacent side of the portion to be registered toward and away from the pin although movement of the sheet at right angles is prevented. Invented by Joseph Arthur Ball, Los Angeles, California. Assigned to Max McGraw, doing business as McGraw Colorgraph Company, Burbank, California. Application March 15, 1943. 6 claims.

DESIGN 144,540. ORNAMENTAL DESIGN FOR A PLATE DEVELOPER that apparently includes electrical heating apparatus. The developer, according to its drawings, is evidently made of sheet metal. It consists of a relatively tall, narrow, rectangular case with one of its large sides having a grid-diamond pattern. One end is connected to a slightly inclined "chimney" that has a hinged cover. The opposite upper corner of the case is rounded off in a sweeping arc. Invented by James T. Campbell, Detroit, Michigan. Unassigned. Application October 31, 1945. Term of 14 years.

Printing Inks and Related Chemicals:

2,398,344. STABLE EMULSIONS OF VINYL ESTERS. In this process of preparing a stable aqueous emulsion containing a polyvinyl acetate, the partially hydrolyzed polyvinyl acetate has an acetate group content between 10 and 25 per cent. The product may be used for grease proof coatings for cloth, paper, and cardboard. It may also be used as adhesives and as carrying vehicles for metal powders, dye, and carbon black. Invented by Henry Michael Collins and Mogens Kiar, Shawinigan Falls, Quebec, Canada. Assigned to Shawinigan Chemicals Ltd., West Montreal, Quebec, Canada. Application November 11, 1942. 6 claims.

2,399,705. METALLIC BRONZE PASTE OR POWDER PIGMENTS are manufactured by a process to increase the metallic luster and specular reflectivity of the metal flakes. Metal particles are ball-milled in a liquid made up of a thinner and a leafing agent, such as stearic acid, bringing the particles to flake form furnished with a leafing film. After the contents of the mill are discharged, the liquid is removed to leave the metal content of the mass at about 80% and capable of lamellar flow. The mass is next worked mechanically in an extruder, causing individual flakes to have moving frictional surface contact with each other and with the surfaces of the ex-

Conference Dates

ANPA Mechanical Conference—William Penn Hotel, Pittsburgh, August 5, 6 and 7, 1946. Worth Coutney, Chairman; Walter E. Wines, Manager, ANPA Mechanical Dept., 370 Lexington Ave., New York 17, N. Y.

Great Lakes Mechanical Conference—Hotel Claypool, Indianapolis, Ind., October 27, 28 and 29. George Fuller, President, Stereotype Supt., Cleveland *Press;* Al Oberg, Secretary, Comp. Room Supt., Flint (Mich.) *Journal.*

Illinois Newspaper Mechanical Conference—Waukegan, Ill., Saturday and Sunday, September 14 and 15. President, Clarence R. Snethen, Superintendent, Waukegan (Ill.) *News-Sun;* Secretary-Treasurer, Howard Colton, Pressroom Foreman, Bloomington (Ill.) *Pantagraph.*

International Association of Printing House Craftsmen—Mount Royal Hotel, Montreal, Canada, Sept. 9, 10, 11. H. Guy Bradley, President, 5480 N. Illinois St., Indianapolis 8, Ind.; Herbert Threlfall, Secretary, 55 Pine St., Providence 3, R. I.

International Trade Composition Association — Atlantic City, N. J., Sept. 19, 20 and 21. Lester A. Neumann, President; William Lickfield, Executive Secretary, 5th and Chestnut Sts., Philadelphia 6, Pa.

National Graphic Arts Education Association—Hotel Benjamin Franklin, Philadelphia, Pa. June 13, 14 and 15, 1946. Fred Hartman, Director, 412 National Savings and Trust Bldg., Washington 5, D. C.

New England Mechanical Conference—Hotel Statler, Boston, Mass., Oct. 5 and 6. George L. Green, President, Providence (R.I.) *Journal;* Walter C. Crighton, Secretary-Treasurer, New London (Conn.) *Day.*

Northwest Mechanical Conference—President, Wm. C. Brown, Mechanical Supt., Minneapolis (Minn.) *Star-Journal;* Vernon Eck, Secretary, 3725 48th Ave. S., Minneapolis 6, Minn.

PNPA Newspaper Mechanical Conference—Wm. N. Hardy, Mgr., Pennsylvania Newspaper Publishers' Assoc., 209 Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America—Traymore Hotel, Atlantic City, N. J., September 9 through 12, 1946. James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington 5, D. C.

SNPA (Eastern Div.) Mechanical Conference—Exact dates to be announced later. C. Frank Mann, Chairman of the Mechanical Committee, c/o *Courier-Journal* and *Times,* Louisville, Ky.; Walter C. Johnson, Manager SNPA, P. O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Division) Mechanical Conference—Texas Hotel, Fort Worth, Tex., Monday and Tuesday, August 19 and 20. Chairman, C. W. Washburn, *News-Tribune,* Galveston, Tex. Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex.

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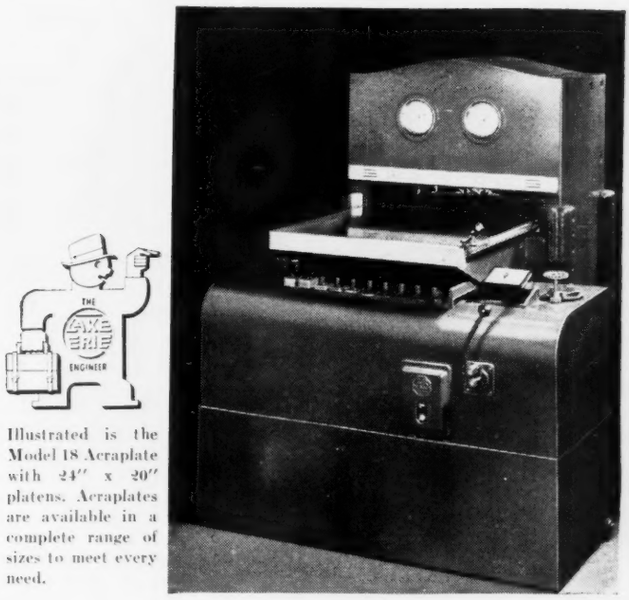

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• Leading manufacturer of hydraulic presses . . . all sizes and types . . . stereotyping — plastic molding — rubber vulcanizing — processing — metal working — special purpose.

truder, thereby wearing off flake surface. Invented by Othon Adolf Ziehl, Union, New Jersey. Assigned to Metals Disintegrating Company, Inc., Elizabeth, New Jersey. Application March 31, 1941. 1 claim.

Printing Presses and Equipment

2,398,379. STENCIL PRINTING MACHINE of the type in which a stencil frame is mounted upon one end of a platen for pivotal movement into and out of printing engagement with sheet to be printed, the sheet being supported on the upper surface of the platen. Distance of frame from platen is adjustable to accommodate materials of various thickness. The mounts for the squeegee are also adjustable so that the pressure of the squeegee may be varied to provide the desired distribution and penetration of ink. The inking and printing positions of the squeegee holder are regulated by screws and the amount of force exerted by the squeegee against the sheet to be printed is determined by the yielding resistance of compression springs acting downwardly against the pivotally mounted squeegee supporting bracket. Machine is of simple construction, practically all parts being various forms of standard, structural sections, such as channel-or angle-irons. Invented by Leo G. Kenney, Chicago, Illinois. Unassigned. Application January 26, 1945. 17 claims.

2,398,832. PRINTING MECHANISM that is an improvement on the invention of patent 2,109,486. An auxiliary printing mechanism is provided that is adapted for use in conjunction with the usual metal impression cylinders of lithographic printing presses to print relatively small local areas of the sheets passing through such presses. A numbering device is operative to number sheets as such sheets are carried around the impression cylinder. Invented by Joseph F. Jirousek, Cleveland, Ohio. Assigned to The Chandler & Price Company, Cleveland, Ohio. Application November 21, 1941. 2 claims.

2,399,493. CHANGE-SPEED MECHANISM for rotary printing presses. A constant speed drive shaft has an externally and internally toothed gear on it and a driven shaft with a spur gear concentric with the driven shaft and meshing with the external teeth of the drive shaft gear. A rotary crank shaft with a spur gear on it meshes with internal teeth of the drive shaft gear. An oscillating shaft has an arm connected to the crank shaft and an internal gear on the oscillating shaft. Spur gears carried by the concentric gear mesh with both the internal gear on the oscillating shaft and the spur gear on the driven shaft. Invented by Hans J. Luehrs, Westerly, Rhode Island, and Phillip W. Cottrell, Stonington, Connecticut. Assigned to C. B. Cottrell & Sons Company, Westerly, Rhode Island. Original application April 22, 1944; divided and this application February 22, 1945. 2 claims.

2,399,688. INK FOUNTAIN providing a means for automatically contracting the size of ink supply reservoir proportionately to the quantity of ink dispensed therefrom. Thereby the fluid level of the ink supply is maintained substantially constant and the remaining ink supply is subjected at uniform depth to the frictional rolling and stirring influence of the dispensing roller to effect uniform mixture and prevent settling or stagnation of any part thereof. The ink reservoir has an adjustable wall. A governor means supported upon the ink content of the reservoir is variable with the fluctuations thereof to automatically start and stop an actuating means for the adjustable wall so fluctuations of the level of the ink is compensated to maintain such level constant. Invented by Albert W. Metzner and Ardath A. Gopperton, Dayton, Ohio. Assigned to The Standard Register Company, Dayton, Ohio. Application March 9, 1942. 16 claims.

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Complete Plastic Platemaking Source

Williamson & Company is a New Jersey corporation which started operations in February, 1946. The corporation will promote the use of plastics in the platemaking industry.

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Over a period of many years, machinists have been asking us for a brush to clean channel entrances. They know that there is little use cleaning matrices and magazines if the channel entrances remain gummy.

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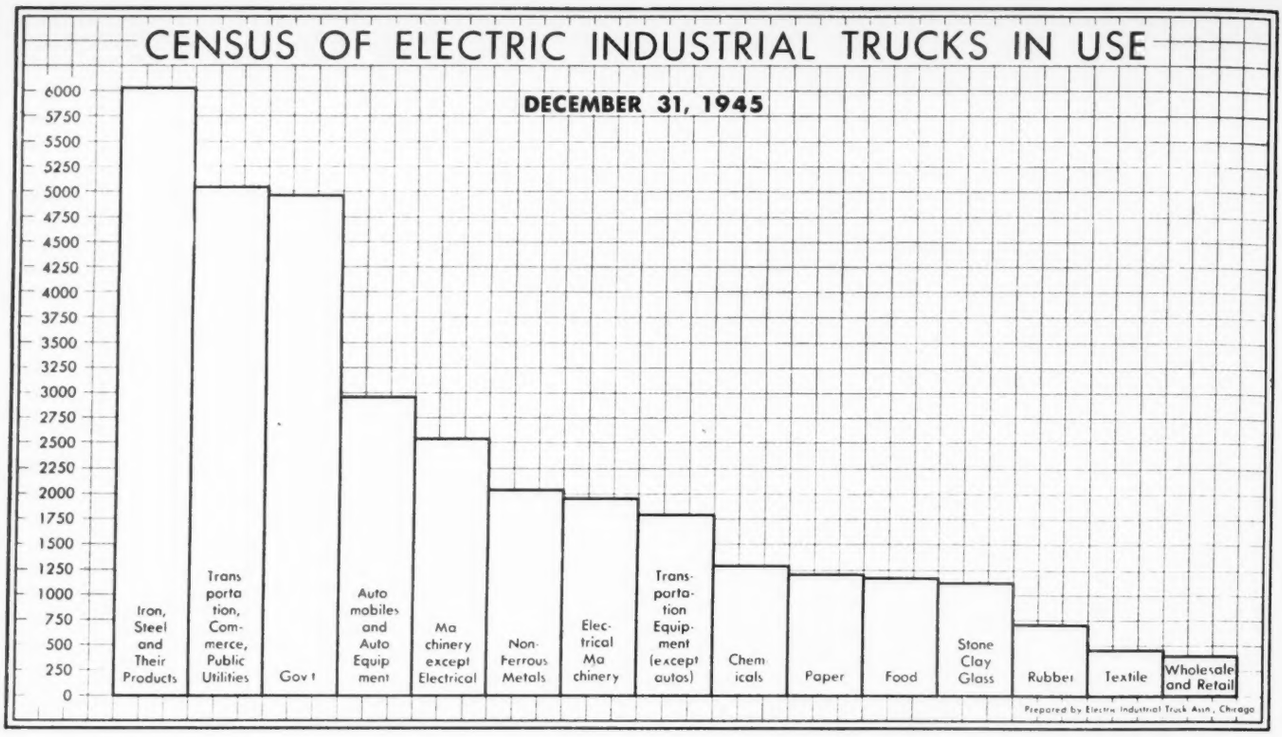

Manufacturers of paper and allied products rank ninth among the nation's private industrial and commercial users of electric trucks, it is revealed in a survey by the Electric Industrial Truck Association, Chicago.

The survey shows that 1,242 electric industrial trucks were being used to solve material handling problems at 331 plants in the paper industry, as of Dec. 31, 1945. Throughout the nation, a total of 34,802 electric trucks were in service at 5000 plants.

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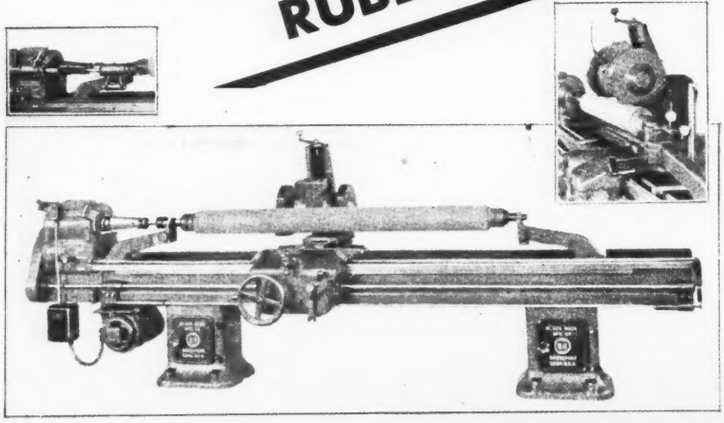

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Grinds at any point from Top to Back

Ideal for grinding ball bearing rollers

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Challenge Semi-Steel Imposing Surfaces are two inches thick with heavy reinforcing ribs at right angles to prevent sag. The tops are precision ground to a high degree of accuracy and will maintain that accuracy when properly supported. Furnished with or without rabbet for standard galleys.

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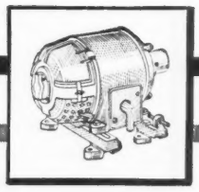
CUSTOM-BUILT MOTORS



KIMBLE ELECTRIC
Division of Miehle Printing Press & Mfg. Co
2005 WEST HASTINGS STREET
CHICAGO 8, ILLINOIS
DISTRIBUTED BY: AMERICAN
TYPE FOUNDERS

A. L. CUSHMAN, *Pioneer*

On November 2, 1893, the first Cushman Typesetting Machine Motor was installed in the plant of "The Daily People and Patriot" (now the "Monitor-Patriot") of Concord, New Hampshire.

It was, incidentally, the second motor ever made in the United States for any purpose, designed to use three phase current.

Here is an excerpt from the "Patriot's" account of this important event:

"All motors of this class look wonderfully simple in their mechanism, and it is truly astonishing to those who have seen the old system (single phase) in which rheostat, commutator, and brushes play a most important part, what an enormous power is developed by them."

Cushman Motor Division

LINOTYPE PARTS COMPANY
WEATHERLY, PENNA.

Like the lure of a PERSUASIVE VOICE

The well printed page has a TONE that attracts, pleases, convinces . . . Often the reader could not tell what makes him reach for one paper and pass another by. But subtle qualities of composition, press work and stereo reproduction doubtless weigh heavily . . . Often a change to Certified mats has been a key measure in the improvement of a paper's TONE.

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Certified DRY MATS

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"VIBRATING"

PAPER JOGGERS

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Table models and floor models.

The floor models are equipped with casters to permit easy moving from one department to another.

Write for literature

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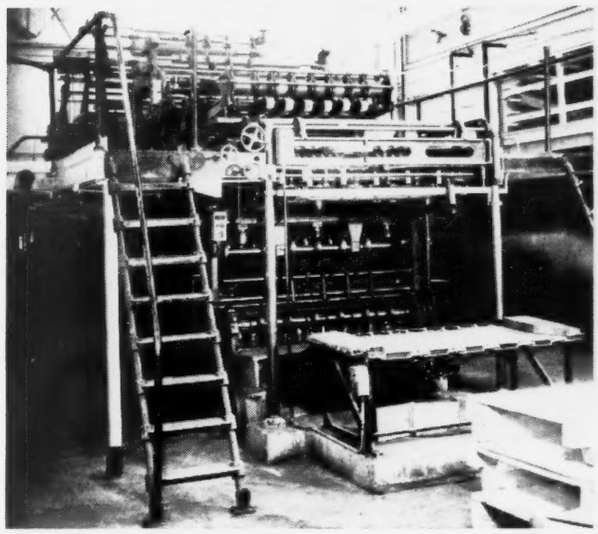

Increase your production and cut your costs with this press. This press has regularly turned out 250,000 to 300,000 calendars per day, printed two sides, folded, stitched and slotted for hanging.

In one year's time, it has printed 23,435,000 two-color calendars, 9½ x 12½—20,193,000 almanacs, $6\frac{3}{16}$ x 9½—32 pages and cover, inside page two colors, cover four colors outside, two colors inside, 43,669,000 two color—32-page booklets $6\frac{3}{16}$ x 4¾ with cover, four colors outside and two colors inside.

Single sheets can be delivered at much higher speed.

DIMENSIONS OF PRESS

Length overall	**48 ft. 6 in.**
Width overall	**15 ft.**
Height of press	**14 ft.**
Depth of pit	**5 ft. 6 in.**
Foundation above floor	**2 ft. 1 in.**
Length of cylinder between bearers	**54 in.**
Circumference cylinder between bearers	**51 in.**
Diameter of plate cylinder	**15.85**
Diameter of impression cylinder	**16.09**
Diameter of printing circle	**16.234**
Circumference of bearers on printing circle	**51 in.**

This press is complete with 30 H.P. D.C. motor, and Cutler-Hammer switchboard, together with eight stations, and a 15 KW motor generator set, which drives the unit.

Fitted with hardened steel bearers, and self-aligning roller bearings. Ink rollers fitted with ball bearings.

Having discontinued publishing almanacs, calenders and booklets, we offer this press and equipment, at an unusually attractive price. Press and equipment in perfect condition.

For complete information, address —

E. H. Beardsley, General Manager or Fred Lobley, Chief Engineer

Miles Laboratories, Inc.
ELKHART, INDIANA

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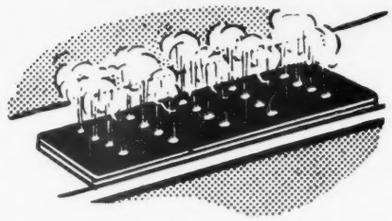

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Users Agree on Joint Effort To Reduce Paper Weights

IN a statement released to all members, the National Publishers Association, representing the nation's magazine publishers; Printing Industry of America, Inc., representing the nation's commercial printers; and the American Book Publishers Council have urged that paper usage be restricted to those weights manufactured under the former WPB order L-120 schedules I to XIV, June 5, 1944 (as amended) which order limited the weights of paper that paper mills could produce.

Part of the statement follows:

"The American Paper and Pulp Association, representing the paper manufacturing industry, has sought to cooperate with us. There has, in fact, been a substantial increase in paper production since the first of the year. The problem arises from the fact that there is simply not enough paper manufacturing capacity in the United States to supply our vastly expanded civilian economy. Paper making equipment is custom built and takes a year or more to construct and install. . . . the shortage may continue indefinitely.

"As publishers and printers, we are more interested in the amount of printing surface available than in the gross weight of paper manufactured. During the war, the weights of paper were controlled under WPB order L-120. Under this regulation a substantial increase in paper surface relative to the total weight of paper manufactured was achieved.

"We have had complaints from some of our members that when they have requested certain lighter weight papers, they have been notified by mills that these have been discontinued in

DEVELOPMENT ENGINEER ▲▲▲ WANTED

One of our clients, a Middle West manufacturer in the paper processing field, wants a graduate mechanical engineer for design and development work on machinery, equipment and products.

Applicant should be 32 to 36 years of age with several years experience along similar lines and be a good draftsman. Write giving full details as to education, experience and general background to

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Telephone Central 5040
CHICAGO 3, ILLINOIS

SKF Cuts Red Tape to Wind up War Contracts—Reams of paper work resulting from cancellation of war contracts placed with SKF Industries, Inc., Philadelphia, were reduced by Army Air Force personnel to the single claim which Major Alexander A. Cyms, (seated) contracting officer of the armed forces, is shown settling with Thomas W. Dinlocker, vice president and treasurer (left), and William E. Vollmer, assistant vice president in charge of contract termination for the ball and roller bearing firm. Approximately 75,000 contracts were completed and 5000 were cancelled when most war orders were automatically terminated following Japan's defeat.

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Give better cutting at lower cost—proven under severe test in America's largest paper mills and printing plants. Made of a new alloy to withstand heavier cutting and still hold a keen edge for long runs. Ground with a slight concave and taper on the face for clearance—smooth cutting.

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- Sufficient speed at cutter edge to route fine or rough out without reducing speed.
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favor of heavier papers. It is the belief of the paper-consuming industries that if the weights of paper increase progressively, as seems to be happening, we will get a false picture of the amount of paper available. Unless the weights can be held down, the same amount of pulp will result in less printing surface. Actions of this sort will cancel out the gains in total tonnage as reported by the paper industry and reduce the yardage available for printing. However, if and when the users have evidence that there is no longer a severe shortage of printing surface, it will be to their interest to encourage the production of heavier types of paper.

"This voluntary program is also in accordance with a suggestion made on April 2 by the National Paper Trades Association, representing the paper merchants.

"Printers and publishers are advised to tell their customers that as a measure of conservation the heavier weights of paper will not be made available until there is a general improvement in paper production. The associations representing fine and book paper users will continue to consult regularly with each other and with the paper industry and will advise their members when the situation is improved sufficiently to justify an increase in the weights of paper used."

Organizes Paper Center

The formation of the Paper Center, Inc., has been announced by its president, Bernard H. Ross. In addition to supplying paper for every use and for packaging purposes, the Paper Center, Inc., will maintain a creative art staff to design various package items from inception to completion.

Bernard H. Ross, President of Paper Center, Inc., to be located at 18 John St., New York, N. Y.

For the past seven years Mr. Ross served as Sales Promotion Manager of the Milton Paper Co.

Permanent quarters will be located at 18 John St, New York, N. Y., during July.

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PIA Recommends Paper Weights

The May issue of the *Washington Digest*, an official publication of Printing Industry of America, Inc., will contain a simplified guide for printers on the purchase of paper to enable them to reduce paper weights to war time standards. The story as it appears in the *Washington Digest* follows:

"USE THESE BASIC WEIGHTS FOR PAPER

"In order to get the maximum amount of paper surface to print on, the three industries using the principal volume of book, groundwood, and fine paper, have agreed to urge their members to return to the usage of those weights of paper manufactured under war time Order L-120.

"The orders are exceedingly complex but for the benefit of PIA members here is a simple breakdown which we suggest be used as a guide:

Coated	70	Substance	and lighter
Offset	50	"	" "
Bonds	16	"	" "
Super	50	"	" "
English Finish	45	"	" "
Newsprint	32	"	" "
Cover	50	"	" "

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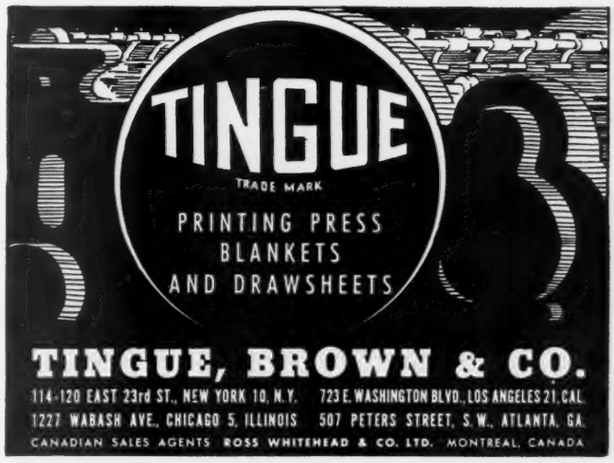

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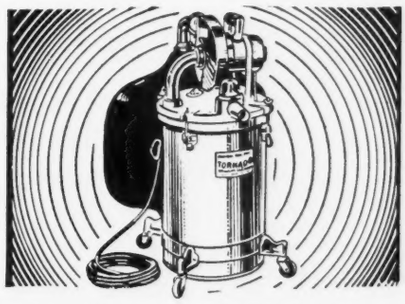

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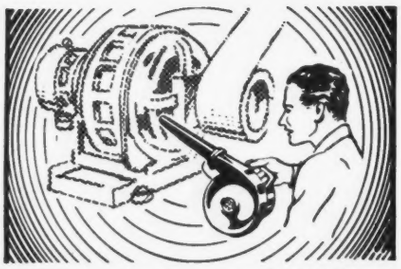

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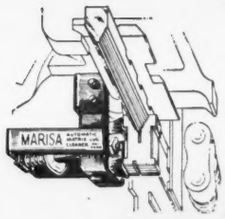

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without removing from machine. Safe; uses fine wire brush. Easy to install. Model U for Intertypes and non-mixer Linotypes. Model LM for mixer Linotypes. $12.50 each, postpaid. 10% discount on 5 or more.

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Contains twenty-five illustrations and brief descriptions of Vandercook Proof Presses, Block Levellers and Gauges—enabling you to compare one with another, and thus determine which best suits your needs.
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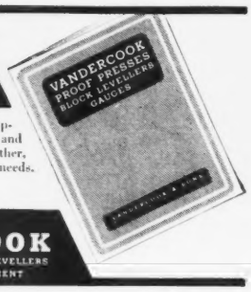

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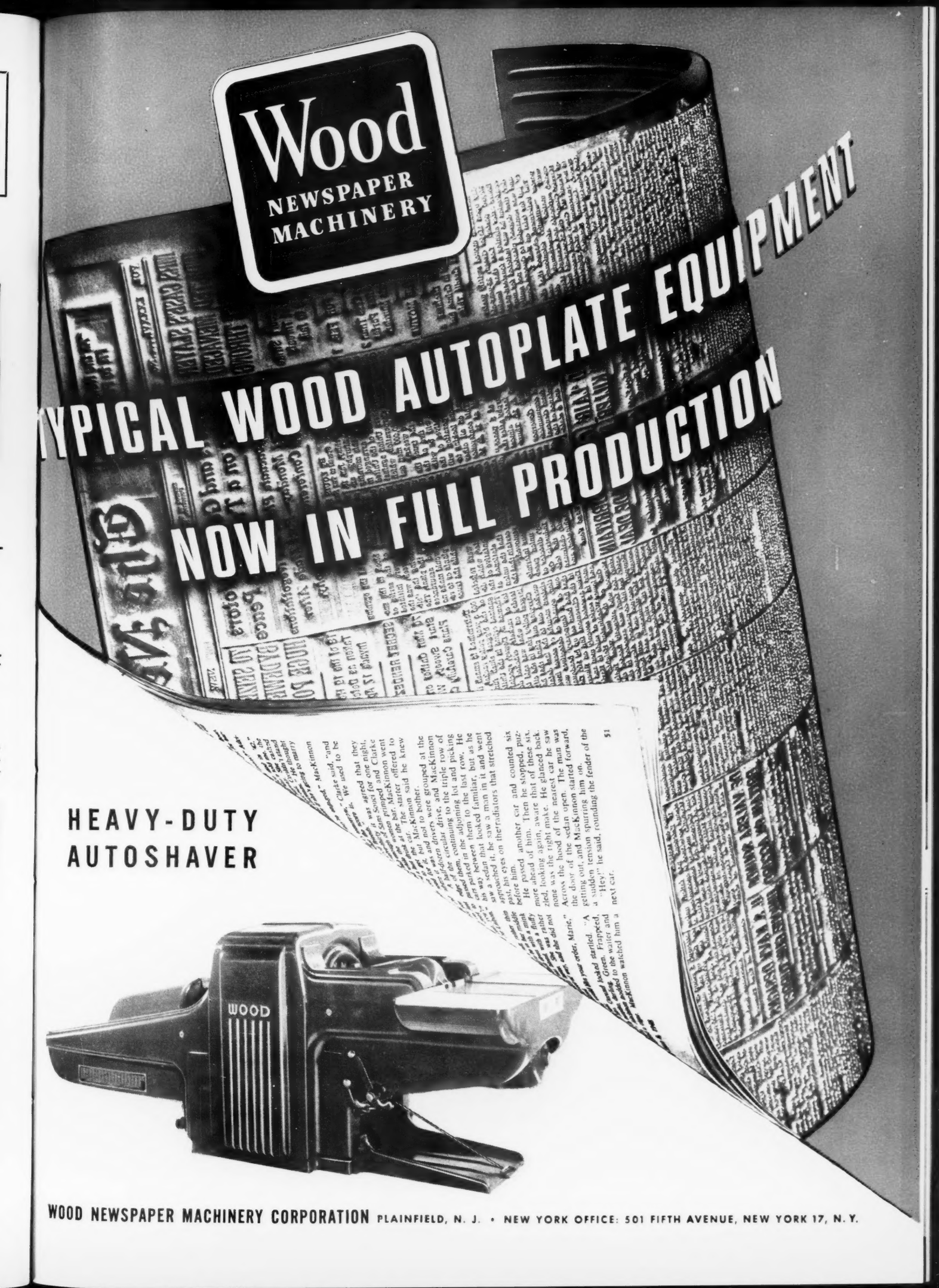

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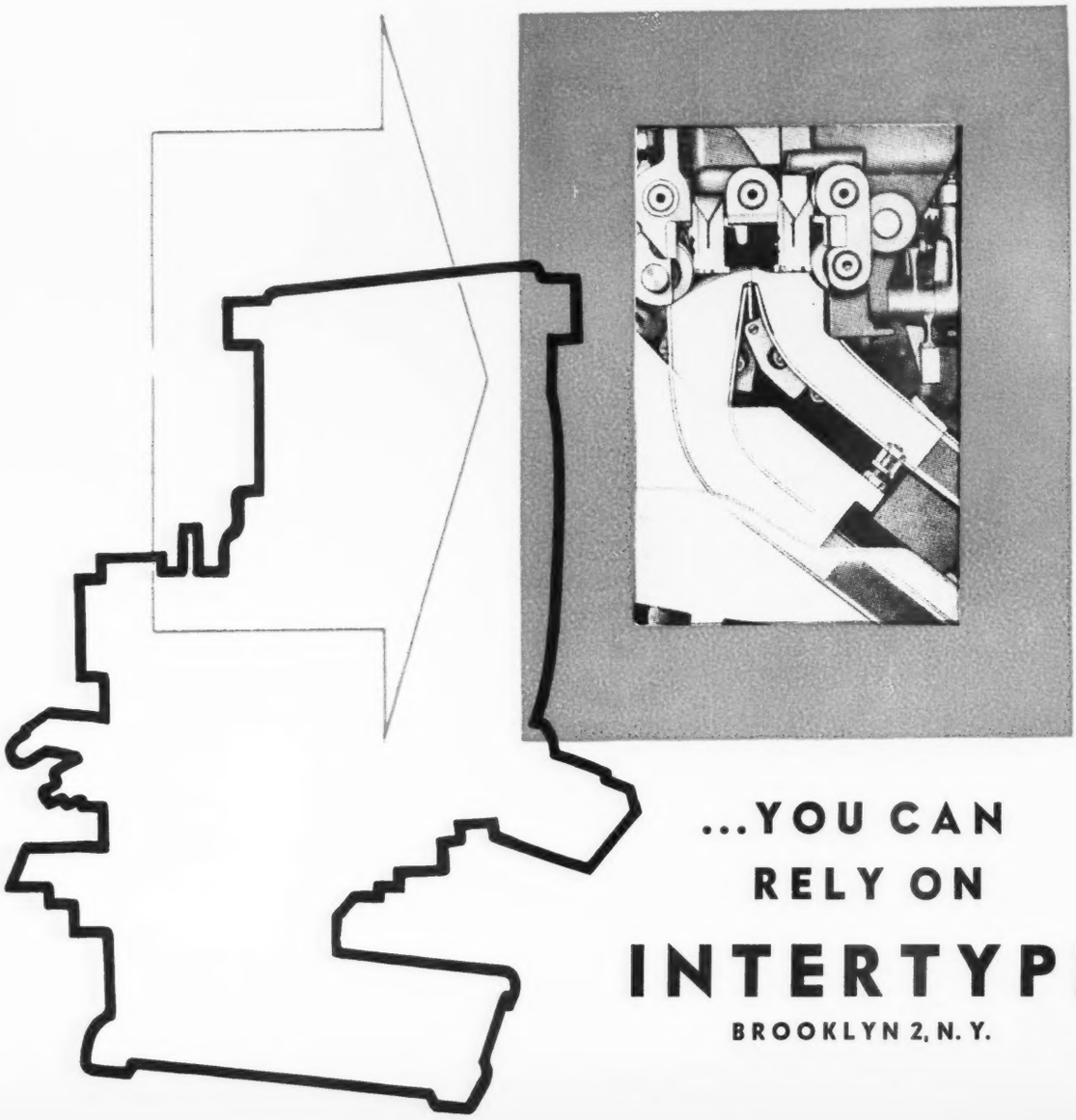
Mechanical simplicity means easier upkeep, more reliable functioning. Note in this illustration of mixer distribution, for instance, the short, direct, hazard-free path of travel of the matrices from distributor bars to magazines. This is just one reason why...



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